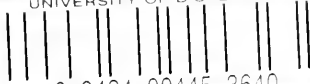


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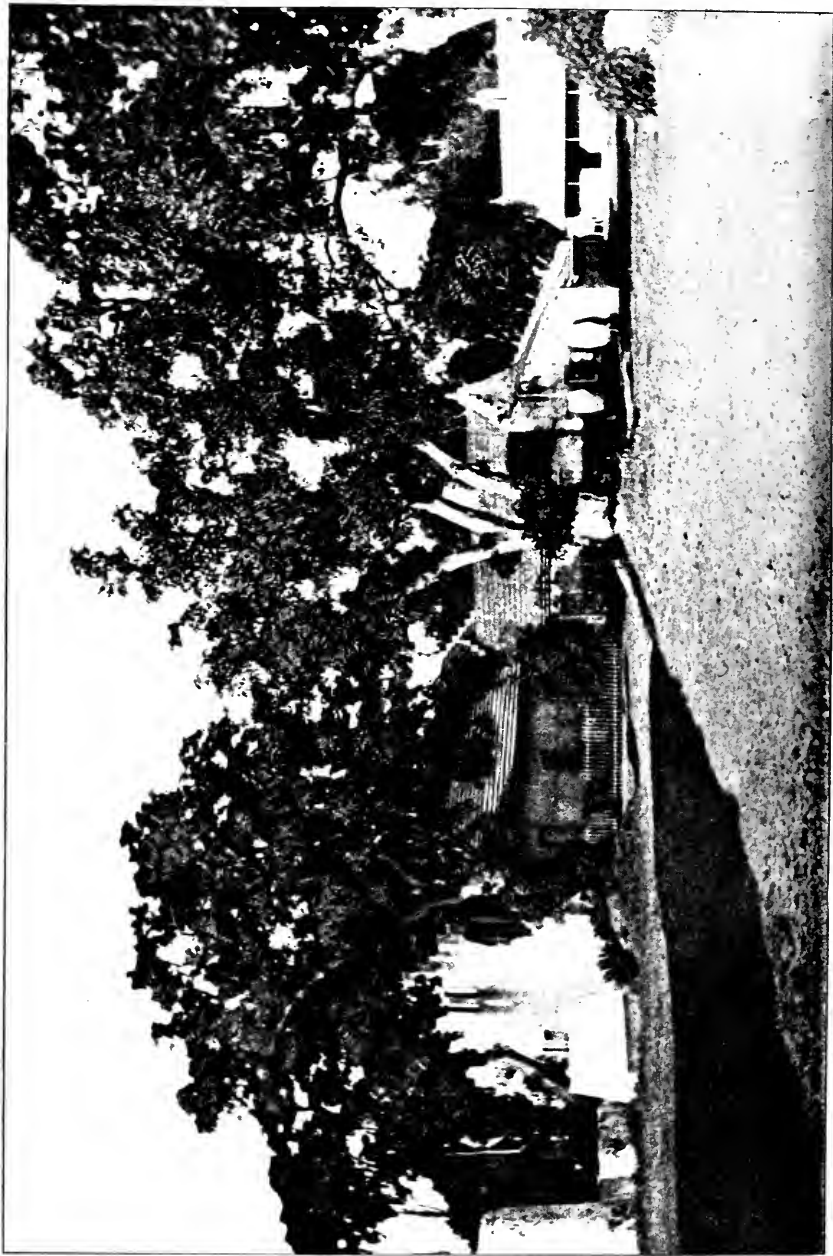


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SHEEP-BREEDING INDUSTRY
IN THE
ARGENTINE REPUBLIC



"LOS YNGLESES" HEAD STATION.

Frontispice.

THE HISTORY AND PRESENT STATE
OF THE
SHEEP-BREEDING INDUSTRY
IN THE
ARGENTINE REPUBLIC

BY
HERBERT GIBSON

BUENOS AIRES
RAVENSCROFT AND MILLS

1893

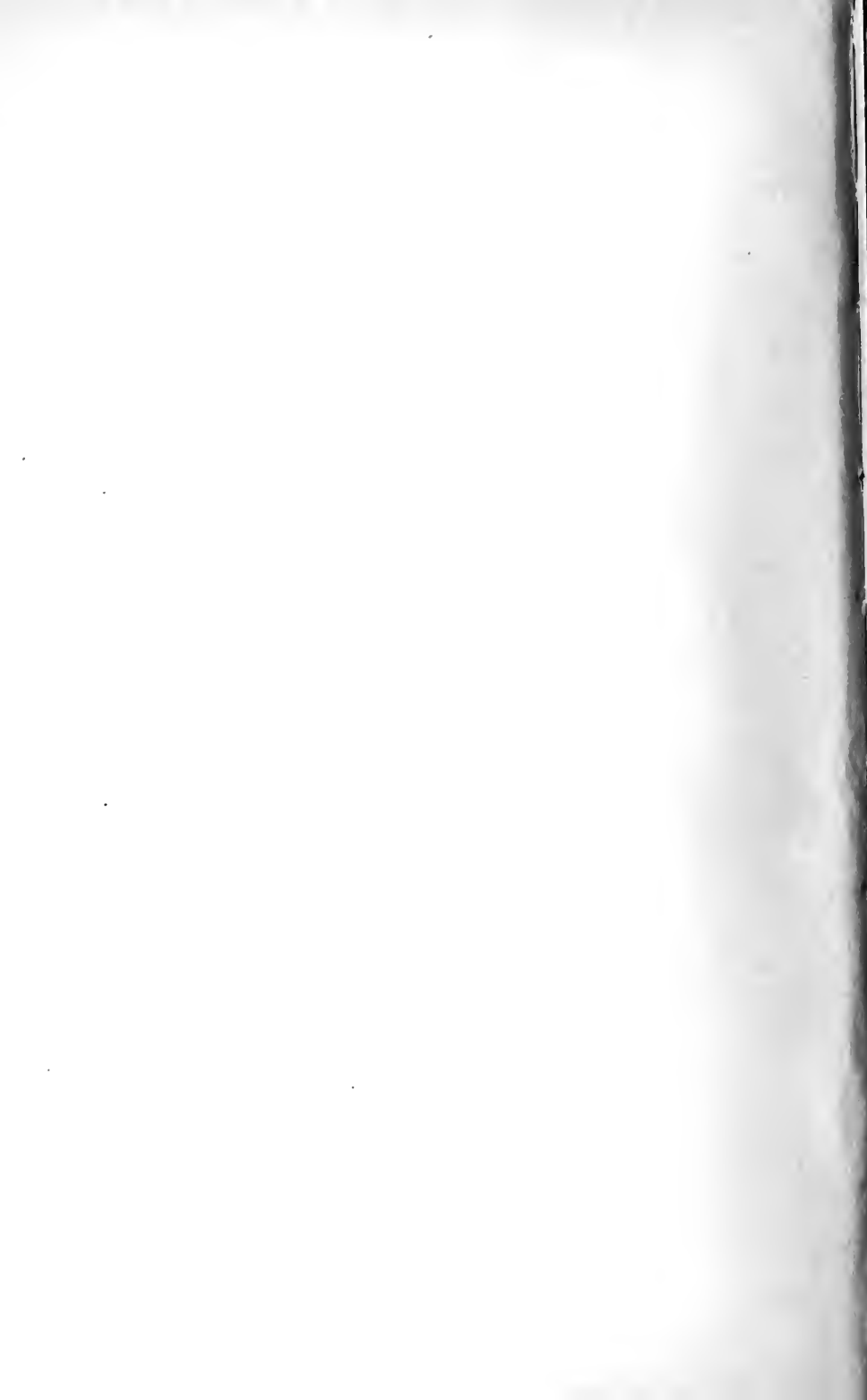
TO

THOMAS GIBSON, Esq.,

Who was one of the first pioneers of the Sheep-breeding Industry in the Argentine Republic, both in the introduction of Improved Merino and Long-woolled Sheep to that country, and to whose initiative much of the present success in Argentine Sheep-farming is due, this Work is affectionately dedicated by

HIS SON

THE AUTHOR.



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INTRODUCTION

MUCH has already been written upon the industry of sheep-breeding in the Argentine ; but it has either been committed to the ephemeral pages of a periodical, or mixed up with other matters as an item in the economical history of the Republic ; in either case it is practically lost in a general way to the public.

The object of the present booklet is twofold ; it is intended alike for the prospective colonist who looks abroad from his over-crowded country in search of a new home where he may settle and progress, and for the sheep-farmer already come to the country, with a view to assist him in the selection of his stock and in the manner of breeding them at a profit. To the latter much of the matter contained in the following pages will be superfluous, but it is necessary to the embryo colonist who has scarcely yet learned the geographical position of the various Provinces of the Republic. Many of the pages are specially written for the modest working capitalist who is looking anxiously afield for a land where he can find a comfortable home, and gain a fair return for his labour and outlay. It is possible also that

the wealthier capitalist may find encouragement to take up an industry whose prospects are so bright as those of sheep-farming in the Argentine undoubtedly are.

Of the many industries held out by a new country as an allurements to immigrants, there is not one of such a solid nature and so sure of a continued existence as that of sheep-breeding. An industry which provides the dense population of overcrowded Europe with two such essential articles as food and clothing cannot be subject to the capricious evolutions of fashion. It may be more or less profitable as the ratio of supply to demand waxes or wanes, but where the land is naturally so good as to carry one sheep and upwards to the acre, and the climate so propitious to the fleecy charge, the industry must always be a remunerative one.

This is particularly the case in the Provinces of Buenos Aires and the Central Pampa. Here is a land covered with nutritious and abundant grasses, with no heavy forests to be cleared, no difficulties to contend with. One vast even meadow spreads from the skirt of the Atlantic to the foot of the Andes and Cordilleras, and this great expanse is a carpet of rich soil free of stones and barren spots, and clothed with ever-blooming verdure. And here also the climate is perfect; the rainfall, which varies from 26 to 32 inches, is well distributed throughout the year, and serves to refresh the grasses and flush the water supplies. The tempera-

ture, which at its coldest does not descend below 20° Fahr., at its extreme heat in the shade does not exceed 96°. There are neither snow-storms, nor severe hurricanes, nor atmospheric eruptions of any nature sufficient to do damage to the stock or occasion loss. There are no diseases of an epidemic character to cause serious mortality; and such diseases as do exist or occasionally visit the country, come in such a benign form as to be easily dealt with. Perhaps no better proof of this can be adduced than the practical attestation of a sheet to be found farther on, where the returns upon one farm for twenty-five years are given in full, and year by year, without one single year having occurred where the increase and wool-clip have not been satisfactory. Neither rabbits nor other destructive animals infest the land. In a word, this vast smiling Pampa is the home elect of the sheep, and its numerous natural advantages place it far in the van of all sheep-breeding countries.

It may be a matter of comment that a country thus professedly endowed with such a valuable property has not taken a more distinguished place in the wool markets of the world. In the first place answer could be made by showing the wool and mutton returns for the past five years, by which it would be seen that the supply of both wool and meat from the Argentine is rapidly increasing, and promises to take a first place in the European centres. But this is not all the explanation that

can be given, nor is it a wholly satisfactory one. A new country, struggling to consolidate itself, cannot devote all the time and attention necessary to its internal industries. Sparsely populated, and with a vast domain to handle, the first duty was to establish a federate government, and nationalise a scattered people. Unlike a colony, which, under the sheltering wing of a mother country, can develop its resources and industries at peace, the Argentine Republic has had to come through all the severe trials attending the formation of a new nation. Frequently civil war has swept over the land, scattering the colonists like leaves before a storm. Frequently the shepherd has had to abandon his gentle trade and join his compatriots in a fierce campaign for law and constitution. What wonder then if during this process of evolution the industry of the country has not been fully developed.

But the Argentine has long since emerged from the struggle in which it was plunged for fifty years. The fourteen provinces respond to one federate government, and law and order are established. The consequent spurt in every industry might well have been expected. Railways have been run from north to south, and from east to west; towns have sprung up everywhere; immigration has poured in, and the land has been opened up for the colonist. In the north great waving fields of corn have taken the place of desert lands, once the haunts of the

wandering Indian. In the south the whole broad Pampa is dotted with sheep and cattle and horses. As is not unfrequently the case, the inhabitants became intoxicated with the brilliant prospects of the country and speculation took the place of thrifty labour. Land, houses, stock, all rose in value until fabulous sums were reached and the country became one of golden dreams and Asiatic splendour. Every one, rich and poor, young and old, joined in the mad rush of folly; those who would fain have paused to consider were carried on with the stream. England poured in its millions, and careless of reason heedlessly pandered to the impossible schemes of a nation maddened by success. Companies were formed everywhere and for the wildest of projects. Throughout its length and breadth the land was flooded with bubble enterprises;—and of course one day the bubble burst.

Consequent upon the financial crash and national disaster which have followed the boom, has crept in a distrust of things Argentine. Unable to separate the grain from the chaff, the outside world now classes everything Argentine as “bogus.” The failures of banks and companies, the insight gained into the rottenness of many a plausible scheme, have given to our industries a colour of fictitiousness, and the lash is impartially applied to the genuine and spurious alike. Such a state of things cannot last for ever, and discriminating capitalists must soon discover the solidity of the most important, as they

are the most primitive, industries of the Argentine—agriculture and stock-raising. Of the importance of the latter too much cannot be said, and it is destined, in company with its sister industry, to redeem the country and restore to it its old prosperity, the consummation of which is dependent upon the return of public confidence.

Before terminating this brief introduction I take the opportunity to acknowledge the assistance kindly afforded to me by Dr. Estanislao S. Zeballos, whose work *A Través de las Cabañas* has very materially aided me. I also desire to thank those sheep-farmers who have provided me with the information contained in Chapter VII.

BUENOS AIRES,

20th March 1893.

CHAPTER I

FIRST INTRODUCTION AND HISTORY OF SHEEP IN THE RIVER PLATE

THE story of the growth of the sheep-breeding industry in the River Plate resembles that told of all the great wool and mutton producing countries in its record of disaster, trials, and repeated failure. As in Australia every step in advance was checked by opposition arising out of the jealousy of the local government and the distrust of people in the mother country, so in the Argentine Republic civil war and internal trouble held back an industry destined to enrich a continent, and which was of such great vitality that no amount of neglect and rebuffs could destroy its progress, or do more than retard its development. For nearly three centuries the industries of Spanish America were discouraged by the prohibitive measures of a short-sighted home administration. A feeble and uncertain commerce was carried on with Spain ; the markets of the rest of the world were closed to the South American colonies. "All access to the Spanish settlements was not merely

closed to foreigners, but even the inhabitants of the different provinces were prohibited from intercourse with one another.—*Cedula of 1609*. Commerce was exclusively carried on with Spain, and was almost entirely in the hands of the Spaniards. Law 7, tit. 87, book 9, of the *Recopilacion*, prohibits the inhabitants of Spanish America, under penalty of death, to trade with foreigners on any pretext whatever.” (*Revolution in Spanish America*, 1817.) Production was limited by law, and this contemptible retrograde policy was carried to the extent of fixing the number of tobacco plants to be cultivated in South America, prohibiting the plantation of vines in any colony other than Chili or Peru, and restricting in every way the development of this new world. Such was their state of bondage that the Americans petitioned the Spanish ‘cortes’ in January 1811 for certain privileges the very nature of which portrays their enslaved state. Of the eleven propositions the following two will suffice:—“*Secondly*, The free natives and inhabitants of Spanish America shall be allowed to plant and to cultivate whatever their climate will produce; with license to encourage industry, and to promote manufactures and arts in their fullest extent. *Thirdly*, Spanish America shall enjoy the liberty of exporting her own natural and manufactured productions to the Peninsula as well as to the allies, and to neutral nations; and of importing whatever she may want.”

The turmoil and party quarrels consequent upon the declaration of independence in the United States

of the River Plate in 1810; the consolidation of the fourteen provinces which now formed the Argentine Confederation; the attention which the political evolutions of the country demanded from every inhabitant, kept the national industries from receiving that care and impulse which the reformed commercial circumstances of the country justified. It must, therefore, be always held in view that the Spanish yoke until 1810, and from that year until a comparatively recent period the internal strife attendant on the nationalisation of a vast country, were adverse to the progress of the breeding of sheep in a land so eminently adapted for their production.

At the time of the conquest of Peru there already existed a breed of indigenous sheep, sufficiently valuable even at that early date to be esteemed by the Incas, and appreciated by the conquerors—they themselves born in a country famous at all times for its fleecy bleaters. Prescott mentions them in his *History of the Conquest of Peru*, and describes the migrations of flocks under the care of their shepherds from one quarter of the country to another in a manner similar to that which obtains in Spain and is regulated by the *mesta* code. These indigenous sheep were sheared once a year. In 1539 the first sheep were brought east from beyond the Cordilleras to Asuncion by Don Ñufflo Chaves, and attracted the attention of the early settlers in Paraguay. Don Juan Nuñez del Prado invaded Tucuman in 1550, and brought with him a flock of sheep from Peru.

The value of these early importations was rapidly appreciated, for in 1569 Don Juan Ortiz de Zarate, at that time Viceroy of the River Plate colonies, stipulated, in a convention celebrated with the Spanish Council, for the importation of 4000 Spanish merinos from the mother country. He died before attaining his meritorious object, but his son-in-law, Don Juan Torres de Vera y Aragon, mindful of his father-in-law's proposal, introduced in 1587 some 4000 Spanish sheep from Peru, which were distributed in the Provinces of Santa Fé, Buenos Aires, and Corrientes. These sheep were the origin of the countless thousands which wandered at sweet will over the broad bosom of the Pampa, and, all uncared-for and neglected, multiplied and increased for well-nigh two centuries and a half. To those who have made the wearisome journey over the Cordilleras to Chile, and have seen those interminable stretches of waterless desert to be found in the north-west of the Argentine, it seems incredible that the adventurous spirits of the sixteenth century could have succeeded in driving sheep such a distance, and through a country full of perils and almost completely unknown to them. Such a feat, achieved in the face of a thousand dangers, appears to-day an impossibility in spite of railways, roads, and a country now peopled with a civilised race. If the tale of the conquest of the South American continent is darkened in every page with bloodshed and rapine, it affords a bright spot in the narration of this noble venture success-

fully carried out by men who may possibly have foreseen that they were laying the foundation of the wealth of the country they had adopted.

Dr. Zeballos, to whose valuable work, *A Través de las Cabañas*, I am greatly indebted for information regarding the early history of sheep in the Argentine Republic, gives the following description, illustrative of the esteem in which mutton and wool were held in the sixteenth and seventeenth centuries:—"At this time, about the end of the sixteenth century, a sheep was worth from six to eight silver dollars; two centuries later it was worth four rials, which clearly proves the great increase in the flocks. During the seventeenth and eighteenth centuries sheep were of no greater commercial importance than domestic fowls. The meat of the lamb was seldom consumed except on holiday occasions, being esteemed rather as a birthday dish, side by side with turkeys and chickens; for the articles in general use as food at that time were cereals and beef, the latter being so abundant that in the sixteenth century they calculated, perhaps fantastically, the amount of cattle in the country to reach forty-eight million head. The wool was long, weak, and coarse; the animals produced a small quantity, sometimes a pound and a half, and many epidemics attacked the flocks of the settlers."

Wool was first exported from the River Plate so early as the year 1600, when Don Antonio Juan sailed for Europe with 97 *arrobas* (2425 lbs). In the same year Don Francisco Gonzalez

exported 100 sheep. From that time up to the close of the eighteenth century there is little record of anything in the annals of sheep-breeding worthy of notice. Wool was occasionally exported, but in small quantities and in a desultory fashion. This need occasion little surprise when it is remembered that Spain was the only outlet for South American production, and the sheep existing in that country were more than sufficient to supply the demand of the Spanish manufactories. A heavy importation from the River Plate would have inevitably raised an outcry among the Peninsula sheep-breeders, who, being at home, were better able to watch their interests than the colonists. Few sheep were sheared, and the wool was employed in making mattresses. The famous *vicuña ponchos* were made from the wool of the sheep of that name, and were highly esteemed. Mutton was not an article of consumption, the city of Buenos Aires being almost entirely supplied with beef and veal. Those who owned land and stock were content to watch their beeves multiply, and to breed horses of the Spanish jennet type; sheep were neglected and despised. They were almost classed with wild beasts and fowl, looked upon as public property, and allowed to roam at will, and increase or die off as the years were clement or severe. The beginning of the present century found the sheep stock un-bettered in quality, of a poor type, and bearing a miserable fleece. They were of two classes: the

Pampa sheep, descended from the mountain long-wool imported from Spain; and the *Criollo*, descended from the Spanish merino, but so degenerated as to little resemble the latter in either wool or type. The *Pampa* sheep was leggy, with a white face, bare about the neck and belly, sometimes with four and even six horns, hardy and prolific, and bearing long weak wool with no yoke. The *Criollo* was a smaller animal, many of them black or brown, thinly boned, with a shaggy hairy growth on the neck that had the appearance of a mane, the wool mixed with hair and generally of a slaty or red colour.

But the dawn of the great sheep industry throughout the world had broken. During the latter half of the eighteenth century nearly every country in Europe had sent to Spain for the famous silken-fleeced merino, to improve the home flocks. France, Norway, and Holland were in the van, and Germany, England, Russia, and Ireland soon followed the example. The Batavian Government had sent some fine-woolled sheep to the Cape of Good Hope as early as the year 1724, and again in 1765 Spanish merinos were introduced to convince the Dutch colonists that a good fleece was of more value than a fat tail. In 1723 Spanish merinos were imported into Sweden, and despite the severe winters of that northern country they flourished sufficiently to occasion the cessation of the importation of wool from Spain. M. Daubenton is credited with having been the first to

introduce Spanish merinos into France. He brought sheep of that breed there in 1766. In 1786 400 selected merino ewes and rams, picked from the best flocks of Castile, Leon, and the Escorial, were imported to France and served to found the famous Rambouillet breed, which soon excelled in fleece and type the original stock whence it sprung. The Saxony merino was produced from sheep imported there from Spain in 1762. Finally, in the United States, the same desire to improve the sheep of the country by the introduction of the best-woolled stock was awakened; Col. Humphries and Mr. Livingston being mainly instrumental in importing the deservedly popular merino. Mr. Livingston has written an interesting monograph on the introduction and propagation of merinos in the United States of America which was printed by order of the Legislature of New York in 1809. He describes the purchase of the first merino sheep which he obtained in France, as follows:—"I selected two pair of the finest Merinos I could find, and sent them over under the care of one of my own servants, intending to follow them by others. They arrived in safety in the Spring of 1802, and were, I believe, the first couples ever imported into the United States."

It is curious to note that the two great sheep countries of the world, viz. the River Plate and Australia, introduced the improved Spanish merino at the same date; and this coincidence is not isolated to one particular case, but will be found to repeat

itself in other improvements developed simultaneously in both countries. In 1794, the same year in which Captain Waterhouse imported Spanish merinos into New South Wales from the Cape of Good Hope, Don Manuel José de Labarden imported 10 rams and 20 ewes from Spain to the Banda Oriental, now the Uruguayan Republic, but at that time one of the Provinces of the River Plate Viceroyalty. Less fortunate than his Australian contemporary, he appears to have lost these animals, for there is no trace of them to be found in the annals of the sheep history of the River Plate.

Colonel Gordon, who had successfully introduced merinos in 1785 to the Cape of Good Hope, had established a breed there which served as a parent stock to provide Australia. Thus in 1797 we find Captain MacArthur already an enthusiastic breeder in New South Wales, and by 1803 the proud owner of upwards of 4000 merino cross-bred sheep. It was at this latter date that Mr. Livingston had introduced the Spanish merino into North America; and though they met with a cold reception there, and were little held in favour, the great wool-producing sheep of the world soon established a foothold, and by the year 1810 it had found many supporters in the United States. The increasing popularity of the merino in every sheep country again drew the attention of residents in the River Plate, and in 1813 Mr. Henry Lloyd Halsay imported 100 merino ewes, and so founded the first fine-woolled merino flock in the

province of Buenos Aires. This valuable flock throve apace under the skilled charge of its shepherd, a German named Dwerhagen, and increased to the number of 900. Unfortunately, owing to the burning of a thistle field, the greater part of this flock was lost; and subsequent losses so disheartened the owner, Mr. Halsay, who saw the impossibility, in the perturbed state of the country, to continue stock-breeding with any success, that he handed over the remaining sheep to their faithful shepherd Dwerhagen, who now became their owner. The never-ending strife consequent on the declaration of independence in a country still in her infancy, the constant drain upon the inhabitants, all of whom took an active part in the political disturbances, rendered it impossible for thinking men to devote much time to pastoral interests, however cognisant they may have been of their importance. It was not until 1824 that a new effort was made to propagate the valuable merino breed in the country. By this time other countries had shot ahead, though their prospects had never been so favourable as those of the River Plate Provinces, nor could they boast of equal natural facilities for sheep-breeding. Spanish merinos had been introduced into India with moderate success, and had done well when crossed with the native Patna breed. In the Cape of Good Hope the fine-wools had multiplied, and in 1821 the export reached 20,000 lbs., worth from 4s. 6d. to 5s. per pound, though at that date the coarse-woolled fat-tails were left un-

shorn. The success of private enterprise in Australia had at last fired the over-cautious English, and a Company upon a large scale was formed and its effect felt in the Antipodes, where the sheep rose in 1824 to the fabulous price of £5 each. More patriotic was the Company formed the same year in Buenos Aires by Señores Don Juan Pedro Aguirre, Don Manuel José Haedo, and Don José Maria Roxas, who bought the Halsay flock, then numbering 400 odd, from the shepherd Dwerhagen at \$10 per head. A portion of this flock was sent up the River Parana to Corrientes under the charge of their faithful German shepherd, but the climate was not propitious, and they soon died off. The remainder, left in the neighbourhood of the city of Buenos Aires, thrived and increased rapidly until 1828. This year was marked with the Lavalle-Rosas revolution, and the country was again plunged into the turmoil of civil war.

In the meantime other names had appeared on the scene. In the year 1825 Doctor Don Bernardino Rivadavia introduced 30 South Down sheep. These were the years when the Babraham flock and other historical black-faced studs had acquired notoriety, and the far-seeing Argentine patriot aspired to improve the type of the native sheep by crossing them with Downs. These black-faces were a success, and were the progenitors of the famous South Down stock of Don Leonardo Pereyra, who to the present day is an extensive breeder of this class of sheep.

The merino stock imported into the country not

only thrived apace, but the offspring developed into a type superior to that of the animals first imported. Messrs. Harratt and Sheridan associated with Mr. Whitfield, all three British residents, founded a new merino stud flock destined to become the most famous of its day. They purchased a lot imported by Doctor Rivadavia, and themselves introduced from Europe some supplementary shipments. At that time the port of Buenos Aires was blockaded by the French, and more than one precious load of merinos was discharged under the guns of the hostile fleet. This stud flock was placed under the charge of Mr. John Hannah, a name as closely associated with the sheep industry in the Argentine as is that of Captain Mac-Arthur in Australia. The name of the stud farm was "Los Galpones," and here breeding was carried on in a scientific and systematic manner under the capable administration of Mr. Hannah. The revolution of 1828 caused the dispersion of the Halsay flock, and though again reunited, it was again dispersed during a subsequent revolt; and the owners, Señores Aguirre, Haedo, and Roxas, weary of so many reverses, gave the remnants of the flock to various friends. These stray handfuls were the origin of several famous studs or *cabañas*, some of which can still be traced directly to the Halsay blood.

It has been stated that the Dutch colonists at the Cape of Good Hope did not shear the fat-tailed sheep in those early years. But in no country was there such an abandonment manifest as in the Argentine Republic.

The *gaucho*, the native labourer of the Pampas, considered it beneath him to eat mutton, and made his daily meal of the ribs of some tough steer, the meat impaled upon an iron spit and roasted over the fire. Frequently the hide was not removed from the carcase, but both meat and skin were charred upon the embers of decaying bones and such unwholesome fuel. This form of cooking the beef, called *carne con cuero*, when so prepared, is still greatly esteemed by the commoner classes of the Argentines, and certainly renders the beef more juicy than any other mode of roasting it. The huge flocks were allowed to wander unshepherded. The wool was never sheared from their backs. In one case, well authenticated by the author, the sheep were deemed too numerous, and were driven to the seaside, where a portion were precipitated over the cliffs into the sea, thus reducing the flock to what was considered a convenient number. In many runs, or *estancias*, a flock was kept in case of need, to provide mutton for the consumption of the homestead. These flocks were neither shepherded, mustered, nor tallied. If at any time, through the unexpected arrival of a stranger, meat was required, and there was no opportunity for procuring beef, a hind was sent out to lasso and bring in a sheep. He would sometimes be absent for hours in search of the flock, and return to announce that it was lost altogether.

The cross between the new imported *merino* and the native *criollo* sheep was termed a *mestizo*, and this term prevails to-day, and is specially applied to

the fine-woolled sheep of the merino type, to distinguish them from the long-woolled crosses which have been subsequently introduced through the importation of Lincoln and other long-woolled English breeds. These flocks of *mestizos* were exposed to many dangers, and led a precarious life in the early days of sheep-breeding. Not the least of their enemies was the *cimarrón*, a wild dog descended from the domestic curs which abounded everywhere; these *cimarrónes* hunted in packs and were at times even known to drag a boy from his horse and devour him. At the stock farm "Los Yngleses," the property of the author's family, there exists a record of the exterminating war carried on against these wild dogs. Over *two thousand* were killed, and the premium offered per head was \$5, at that time equal to about 1s. 8d. English currency. The grasses were greatly destroyed by the *bizcacha* (*Lagostomus trichodactylus*), a species of prairie dog which undermined the ground in every direction. The destruction of this animal has of late years been enforced by law, and the *bizcacha* has nearly become extinct. The habitat of the animal assisted the measures taken for eradicating them. Several holes lead to one common chamber, and in this burrow lives a colony of from six up to sixty or seventy *bizcachas*. All the holes of a colony would be earthed up except one, and into this one was introduced a long iron tube. This tube was connected with a smoking machine, in which a fire made of sulphur, old leather, etc., was

fanned by powerful bellows. The thick smoke descended into the burrow and suffocated the animals. After pumping smoke into the colony for two hours or so, the tube was withdrawn and the hole earthed up. As the instinct of the *bizcacha* is to burrow inwards and never outwards, there was no chance of any survivor escaping, unless some stray fellow from the outside came to release him. The extermination of the animal was therefore a much easier matter to deal with than the rabbit plague in Australia.

The wool was greatly deteriorated by the big burr, *abrojo grande*, which abounded in great quantities. And continually there was the danger of having the most valuable sheep destroyed by lawless marauders, who took advantage of the troublesome times to destroy and steal wherever they thought fit. Thus, as in other countries, the introduction of sheep-breeding was attended with many reverses, and carried out in the face of innumerable obstacles.

The revolution of 1828 found the neighbourhood of Buenos Aires well stocked with Spanish merinos and mestizos; and in spite of the disturbances which then ensued, the flocks continued to prosper. By the year 1832, the very time when the value of merino stock in Australia had fallen from the high prices of 1825-27 down to a price so low as to almost beggar the breeder, the demand for merinos in the Argentine had become general. Every one went to the Harratt-Sheridan stud to buy, and in one year the owners are stated to have sold £14,000 worth of rams. Breeding

went on briskly until 1837, when the country was again convulsed with civil war, and fell under the dictatorship of Don Juan Manuel Rosas. Between the years 1836 and 1838, 4200 merino sheep are said to have been imported. In 1836 the improved merino from the Electorate of Saxony was introduced, and in 1838 Mr. Sheridan imported the first lot of German Negrettis. This breed, with its ultra-fine wool, attracted great attention at the time, and many polemics were sustained between rival breeders upon the advantages and disadvantages of the production of a race so delicate in constitution, and bearing such extraordinarily fine wool. The German shepherds who accompanied these imported sheep are said to have been astonished at the size attained by the merino stock of the country, which far exceeded that of the European animal. The Harratt-Sheridan flock at that time produced sheep giving 6 and 7 lbs., and rams giving 10 and 12 lbs. of washed wool.

In a deed of sale dated 3rd August 1826, I find the mention of sheep and their price quoted, the latter being six rials per head, which at the rate of exchange of that year was equal to about 2s.—a somewhat high figure in those days for ordinary *criollo* stock. It is interesting to note in the inventory what comprised the stock-in-trade of an *estancia* or cattle farm ; and I quote the deed verbatim—

“ Five thousand head of cattle, including all that walk.
Two hundred horses and mares, including all that walk.
Fifteen hundred sheep, including all that are marked.

Two slaves useful for horsebreaking.

Eight hundred hard wood posts.

A peach wood, as well as other trees.

A paddock with a double ditch.

Fortifications, including a fosse, with two mounted cannon, and several guns and blunderbusses.

A bullock cart, a dwelling-house and furniture."

The area of this estate was 5 square leagues, equal to 33,360 acres, so that even then it may be considered to have carried a fair quantity of stock.

The history of the formation of the first *mestizo* flock at "Los Yngleses," at a time when the estate was far outside the frontier, has been gathered by the writer from private correspondence in his hands, and gives some idea of the difficulties attending pastoral enterprise at that early date. From 1825 there had existed a quantity of *criollo* sheep upon the estate, but one of the owners, Mr. George Gibson, determined to improve their quality. In writing to his brother on 1st December 1834 he says:—"I have resolved to obtain this summer 20 or 30 merino rams. We will part off all the best *white* ewes, and buy as many more as make up 800 or 1000. This stock, with the number of merino rams that may be necessary, will be kept entirely apart, so as to form in two or three years a fine and valuable and large flock of merino sheep." In a subsequent letter dated 18th February 1835 the same writer says:—"Yesterday I went to the *albardón* mentioned by Dr. Ricardo (Newton) as well suited for a flock of merino sheep. I suppose you know that an 'albar-

dón' means a strip of land somewhat higher than that immediately adjoining it. This one would be a capital place for sheep; it is almost surrounded with impassable marshes (at least impassable at all times for sheep), so that it forms a kind of natural enclosure, the only exit being in the direction of the houses, from which it is not distant more than a quarter of an hour's ride. I wish very much to commence the formation of a flock on this place immediately. I am persuaded that those who neglect to form flocks now will afterwards regret it, and wonder how they can have so long remained with their eyes shut. From the flock of sheep we now have we will be able to pick out from 300 to 400 *white ewes*. I will buy 500 more ewes, or rather exchange calves for them. I had much rather pay the money, but the owner prefers an exchange, and he is the only person in this vicinity who owns sheep. I think I might be able to get 500 picked ewes for 100 calves of from six to seven months old, which is valuing the latter at \$15,¹ and the ewes at \$3.² I would prefer this to buying sheep 'by the cut' at \$2."³ This was how the merino rams were to be brought:—The local manager was to go to Buenos Aires with men and oxen; he was to buy four bullock carts and return from town to Mr. Sheridan's place. Here he was to receive 50 merino rams and bring them in the carts to the "Los Yngleses," a distance of about 140 miles through swamp and bog land most of the way. This

¹ 7s. 6d.² 1s. 6d.³ 1s.

was, however, accomplished, and the new flock formed. In a letter written by Mr. Robert T. Gibson, dated 9th December 1836, the *mestizo* flock is thus described:—“A large proportion of the increase in the *mestizo merino* flock are males, I should think at least two-thirds. In the quality also of the wool there is a great difference, some of the fleeces being wonderfully improved, and others little better than the common wool. The number of sheep shorn in this flock is 815, giving an increase of about 150 females from ten to twelve months old, and of these about 40 are fair *mestizas*. I have drafted the males to another flock. The 20 remaining rams have given this year about six arrobas of wool, or say $7\frac{1}{2}$ lbs. per fleece. The weight of a fleece of common wool I found last year to be from $2\frac{1}{2}$ to 3 lbs. at the most.” A year later, viz. 2nd November 1837, the same writer says:—“The sheep get on well, though I find that they do not refine in the wool so fast as they ought naturally to do, many of the *mestiza* ewes having lambs much coarser in the wool than themselves! This I attribute to their being covered by their fathers instead of by other rams, in which case they are said to degenerate, or at all events to improve very slowly in the quality of the wool. I purpose buying ten of Sheridan’s rams, which are much finer than those we bought off Harratt. When these arrive I purpose selecting all the best *mestiza* ewes and making a new flock for them.” Thus barely three years after the acquisition of the first merino

rams a flock composed entirely of merino-cross sheep was formed.

The local price paid for wool was not encouraging. Taking an average for the years 1838, 1839, and 1840, I find that the general figure in the Buenos Aires market was as follows:—*Criollo* wool, washed, $1\frac{1}{4}$ d. per lb.; *mestiza* wool, washed, $2\frac{1}{2}$ d. to 3d. per lb.; *merino* wool, washed, 7d. to 9d. per lb. Messrs. Harratt and Sheridan sold their rams at that time at from £2 : 10s. to £5 each. I find a note of a sale of wethers in 1839 at 3s. 6d. each. These prices are calculated, taking into account the fluctuations of the paper currency. In 1826 the dollar was worth 3s. 8d.; by 1829 it had fallen to $7\frac{1}{2}$ d. In 1836 it was down to 6d., and in 1839 it was at 3d. Mr. Mulhall, in his *Handbook of the River Plate*, gives these quotations, and I have had opportunity to verify them from other sources.

The appearance of the expansive pasture lands of the River Plate in the early years of stock-breeding must have been one calculated to fire the British emigrant's heart with enthusiasm. On every side there stretched the same rich undulating prairie, covered with grasses of the best description, and unbroken from horizon to horizon by a single tree or shrub. It is thus described by one whose experience went back to the first years of merino-breeding:—
“ In December 1839 I recollect riding from the Head Station to the Port, a distance of 7 or 8 miles, through a sea of grass $2\frac{1}{2}$ feet high. My boots,

soaked by the dew brushed off the tall grass, were as wet as though I had been riding through the River Plate. This was at a time when our place was carrying the full complement of stock."

But, even for those who appreciated the great pastoral future of the country, it was a difficult matter to promote sheep-breeding. The land was full of civil war; labourers could not be obtained, they were all enrolled in the National Guard, and were under active service; stations were constantly invaded by detachments of Government troops scouring the country in search of revolutionists. The following incident, described by the author's father, Mr. Thomas Gibson, gives an idea of one of the many vicissitudes besetting the pioneers of the sheep-breeding industry in the country. "In 1839 there was an ill-timed rising in the south against the Dictator Rosas. The insurgents gave battle in Chascomus, and, being defeated, retreated to the coast and encamped upon our place. Here they remained three or four days, getting or taking over 40 steers per diem. Report reached them that the Government army was on their track, and they moved on to Ajó creek, whence they embarked for Monte Video. We, however, anticipating an action and all its consequent disorders, left the head station by night and travelled down to an isolated corner of the *estancia*, taking with us a bullock cart which served as house and store-room. A few days later we heard of the flight of the insurgent army, and

returned to the head station. On the same afternoon the whole eastern horizon became serrated by the Government army, 3200 strong, including 400 Indians, the infantry of course mounted; they brought immense troops of spare horses, and had one or two pieces of artillery. The General, Don Prudencia Rosas, and his staff, accepted the offer of our house, and the army encamped about the steading. They slaughtered 120 steers upon arrival, the General apologising for not being able to save the hides, as the soldiers needed *carne con cuero* on the successful termination of the campaign. They remained with us two or three days, consuming over 60 steers per diem." Similar occurrences could be narrated of every one of the first stock farms in the Argentine.

The introduction of scab into the Argentine is generally attributed to a lot of German merinos imported in 1838. Dr. Zeballos points out that this disease was known to exist at the time of the Conquest, and was called "*curú*"¹ by the Quichua Indians, who had a treatment for it. This is probably the case, for Montoya, whose dictionary of the Guarani-Tupi language was first published in 1639, is very definite in his interpretation of the word *curú*, which he translates *roña*, the Spanish name for the scab peculiar to sheep. Again, in the Spanish-Tupi section of his dictionary, he translates *roña* by *curú*; *pitái*. The Guarani word *mbitaí*, or,

¹ "*Curú*=scab, sheep-scab" (Montoya, *Dict. of Guarani-Tupi*).

as it is generally spelt, *pitaí*, may be literally translated *an irritation or biting of the skin*, which would appear to refer directly to the ravages of the *acarus*. It is very likely, therefore, that scab has existed in this country at all times, becoming more epidemic and contagious in its character as the improvement in stock led to enclosing the sheep and keeping them more in contact with one another. The humidity of the climate lends itself especially to the procreation of the *acari*, and to suggest that the disease originated through the introduction of one small lot of contaminated sheep is to seek to reduce the cause to too narrow limits. So long as no attempt was made to improve the stock, and the sheep were allowed to wander in a semi-wild state, the disease did not spread much; but when the sheep were tended in smaller flocks, driven to and from the steading in a crowd, yarded, and frequently handled, contagion soon multiplied the *acari*. This is the most probable explanation of the rapid development of the disease about 1838.

The exportation of wool had now become a considerable item in the national income. Nevertheless, the majority of owners of sheep of the poorer sorts left them unshorn. Others, more enterprising, purchased the right of shearing, paying from 3d. to 4d. per head. In such cases they did not shear every sheep, but selected the biggest and best, and even these were not entirely shorn, the belly wool being left as worthless. It was well on to

1860 before shearing became an annual and general operation throughout the country. This apparent abandonment should not, however, be entirely attributed to ignorance or negligence. Up to 1854 the country was under the dictatorship of Rosas. Every able-bodied man was taken to serve in the army, and stock of all descriptions were neglected and ran wild. The cattle became *alzada*, and gathering in mobs, scoured the country, particularly along the sea-line, growing as savage and unmanageable as the wild cattle of Australia were at the beginning of this century. Prohibitive duties and taxes deterred the breeder from collecting his produce and remitting it to the foreign markets. For several years the port of Buenos Aires was blockaded by the French, and export was impossible, or extremely difficult. Again, Rosas had prohibited the exportation of grease, thereby sapping an important export. It is due to this long period of stagnation and internal trouble that the Argentine Republic fell behind her rivals North America and Australia, instead of taking, as she should have done, a first rank.

By 1842 the great increase of stock in Australia had brought down the value of sheep in that country to 1s. or less per head. Ruination appeared to be staring the breeders in the face. The price of tallow in Europe at that period varied from 40s. to 65s. per hundredweight, and in 1843 the industry of boiling down fat sheep for their

hides, grease, bone, and glue, was inaugurated. As usual, there was not wanting the ubiquitous false prophet who foresaw in this trade the destruction of all the better stock, and the ruin of the sheep industry. But common-sense prevailed, and farmers soon found their exchequers replenished, and their overcrowded lands relieved of the surplus stock. Whether it was again coincidence, or whether the price of tallow had attracted attention in both countries simultaneously, it is impossible to ascertain; but the boiling-down trade was started in the Argentine Republic in the same month and year as it was in Australia. In 1843 Mr. Robert T. Gibson, of the firm of Gibson Brothers, obtained permission from Government to establish a boiling-down factory in their *estancia* "Los Yngleses." Rapidly the trade increased, and in nearly every small town one or more of these boiling-down *fabricas*, as they were called, was founded. These establishments both bought stock, and killed upon commission on account of the breeders. The value of a fat sheep rose to 6s. and 7s. 6d. Again the hand of the Dictator Rosas fell heavily upon the new budding industry. In 1847 Governor Rosas troops were besieging Monte Video, and death had been decreed to any one sending provisions to that city. A shipment of pipes had been sent from the *Tuyu* district to Monte Video for transshipment there, and through some overlook the word *Sebo* had been used in taking the permit

instead of the word *graza*. The latter word was the one recognised to signify the tallow exported to Europe, and useless for cooking purposes; the former, though strictly speaking the correct one for tallow, was determined to mean fat suitable for eating purposes. This was sufficient. An order was issued, and the unfortunate shipper, Mr. Thomas Gibson, was hurried off, a prisoner, to Buenos Aires. Through the kindly offices of Don Gervacio Rosas, a brother of the Dictator, and other friends, the prisoner was released a few days after arrival. It could scarcely be expected in such perilous times, when the accidental use of a word might be sufficient to cost a man his life, that any industry would flourish and increase. In the official permit given to Gibson Brothers in 1848 to continue the business of boiling down fat stock, there figured the following clause:—“And this is with the express condition that this work shall not be administrated nor served by any person or persons who are *savage Unitarians*.” The savages here alluded to were those whose political creed differed from that of Rosas. All documents public or private, all letters, notes, communications of every description, everything in short either written or printed in the Argentine Republic during the Dictatorship of Rosas, had to be headed with the following generous, fraternal, and republican inscription, written in bold characters at the head of the page: “*Viva la Federacion Argentina! Mueran los Salvages Unitarios*”: which,

being interpreted, means: Long live the Argentine Federation! Death to the Savage Unitarians!

In 1858 the protection tariff of the United States occasioned a heavy fall in wool and stock. This fostered the boiling-down industry, which now took gigantic proportions. Sheep were reduced in value to 1s. or 1s. 4d. In 1867 1,300,000 head were disposed of in the grease factories; and in 1872, over 3,000,000 went into the boilers. Wool fell to 2 $\frac{3}{4}$ d. per lb. in 1867. These were discouraging times for the sheep-breeder, but the steady slaughtering of sheep was destined to have a beneficial effect upon the future. The inferior stock was all killed off, and farmers had a golden opportunity for weeding their flocks, of which the majority availed themselves. This selection of the fittest was bound to have its effect, and by 1866 the improvement in the wool exported was noticed and commented upon in the European market. Argentine merino wools were in great demand in Germany. In 1857 the Rambouillet sheep had been crossed successfully with the *mestizo* Negretti, and the result was a larger sheep, producing a medium fine quality of wool. Men of education and capacity had taken up the sheep-breeding industry. Foremost in the ranks of the great Argentine breeders comes Don Domingo Olivera, who acquired one of the scattered remnants of the famous Halsay flock in 1835. His place was worthily filled by his son, Don Eduardo Olivera, who has done

much to promote the breeding of merino sheep in this country, and whose works on the subject are authoritative in all that refers to the science of fine-wool breeding. Señor Plomer was another pioneer, and the famous Plomer breed dates back to 1838. The Plomer estate is now the property of Don Narciso Lozano, who figures prominently among the Rambouillet breeders. Don Claudio Stegman in 1840 founded another well-known merino stud, and did much toward promoting the industry. Another name deserving of all respect is that of Mr. John Hannah, the able manager of the Harratt-Sheridan merino farm, and who afterwards acquired the *estancia* "Carmen," where he established a historic Negretti flock. Don Tomas Chas, a breeder of world-wide fame, created a special type of merino, which he termed the Argentine Negretti. This breed is notable for the fineness of its wool, and the enormous yield per animal. Other prominent Argentines took a share in the formation of the national flocks. Don Mariano Acosta, at one time Vice-President of the Republic, and at another Governor of the Province of Buenos Aires, founded a Rambouillet flock in 1858. In 1850, Don Manuel Guerrico acquired 50 German Negrettis selected for him by Don Eduardo Olivera, and contributed towards the refinement of the Argentine bleaters. Messrs. Senillosa Brothers, Don German Frers, and many others followed the same exemplary lead, and the country was supplied with typical flocks whence first-class rams could

be bought at moderate prices, to raise the general standard of the Argentine sheep. Enthusiasm for sheep-breeding had at last become general. An exhibition was held in 1858, the first celebrated in South America. Relieved from the yoke of the dictatorship, the country started to develop itself; the land was again stocked with tame herds, and labour was obtainable at easy prices. Dating from 1858, a steady improvement in pastoral industries was commenced and continued.

It has already been stated that Doctor Bernardino Rivadavia introduced in 1825 some South Down sheep, which thrived and increased, and were the progenitors of the immense flocks of the same breed now owned by Don Leonardo Pereyra. The poor wool return from the Down breed, and the malady of foot-rot to which this class of sheep is unfortunately peculiarly predisposed, have prevented them becoming popular, and they are not bred on a scale sufficient to render them a feature in the sheep stock of the Argentine. The wet seasons of 1842, 1843, and 1845 had developed foot-rot to a great degree in the merino sheep, more particularly on those lands lying near the Atlantic seaboard. Both the fluke (*Distoma hepaticum*) and the bronchial or lung worm (*Strongylus filaria*) had also made their appearance. These visitations had a serious effect upon the stock, and some of the English breeders resolved to introduce the long-wools of their own country to mend matters. Among the leaders in this new movement were Mr.

William White, Mr. Richard Newton, Mr. John Fair, Messrs. Gibson Brothers, Ezcurra Brothers, and Crisol Brothers. Of the various home breeds of this class, the three most popular were the Lincolns, Leicesters, and Romney Marshes; and after a few years' experience most stock-owners decided in favour of the Lincolns. They thrived well, gave a great increase, and their wool sold at a high price in Europe. They made a good cross with the merino breeds, and the cross wools fetched exceptionally high figures. For a number of years, however, the Lincolns and other long-wools remained unpopular, even on those lands where the merinos manifestly suffered owing to the damp climate and soil. The breeder feared the long strong wool, accustomed as he was to the golden fleece of his merino; and the white face and clean legs of the English sheep recalled to his mind the valueless *Pampa* sheep of his youth, and he dubbed the symmetrical English bleaters with the same name. Not until 1882 did the Lincoln become a generally popular breed, and to-day it disputes the land with the merino in every corner of the Republic. This change has been brought about by three causes, which I shall only touch here briefly, leaving their further study for another chapter. First, a succession of wet seasons, commencing in 1877 and continuing with few gaps until 1884, had occasioned heavy losses in the merino stock, particularly upon those lands near the seaboard. During this time the long-woolled stock thrived apace, and the crosses rose in value.

This could not fail to attract the attention of the fine-wool breeders, who saw their stock decrease every year, whilst their neighbours who possessed Lincoln crosses obtained each year a healthy increase. Second, the frozen-meat trade, which at its commencement appeared to be of doubtful practicability, soon assumed titanic proportions. The foot-sore merinos, small in carcase and unkindly fatteners, were little sought after; whilst the demand for long-woolled crosses rose, and their breeders found a ready market. Finally, in 1884, a fall in merino wools became accentuated, and long wools, especially the *cross wools*, sold at better prices. Thus the merino breeders saw the whilom despised long-wool produce a better return in every respect—a secure increase, a valuable carcase, and a fleece which topped the market in price. The result has been a rush after Lincolns for crossing purposes. Every Lincoln ram, indeed every ram whose long wool and white face suggested a trace of Lincoln blood, was sold easily, and at a high figure. By 1889 Lincoln cross wool became a most important feature in the Argentine wool market, and in the present year of 1892 there is no sign of abatement in the furore for long wools.

Though started at such an early date, it is only since 1866 that the sheep industry in the Argentine may be said to have really sprung into life. Checked for nearly three-quarters of a century by war and misgovernment, it has been retarded from taking the proportions it may reasonably be expected to assume.

But its star is now fairly in the ascendant. From 1856 to 1886 the stock of sheep has bounded from 16,000,000 to over 90,000,000, surpassing that of Australia, which at the latter date only reached 84,000,000. Unfortunately a comparison of the wool return is not so satisfactory, for while the English colonies in the Antipodes average 5 lbs. per fleece over their total stock, that of the Argentine barely reaches 3 lbs. for the same year. But this does not point out any defect in soil or climate, but only negligence on the part of a great number of sheep-breeders who have not yet discovered that a good sheep and a bad one eat the same quantity of grass, and cost the same to keep. Since 1886 the improvement in the general stock is great, and the return for 1891 shows an average of 4 lbs. per head over 78,000,000 sheep. The capital stock of the country has fallen off since 1886, in great part due to the foothold agriculture has gained in the Argentine. But the eventual result of this agricultural departure will be an increase in the stock of the country, as farmers will find it more convenient to feed off their produce on live stock grown on the farm, or bought for fattening purposes, rather than sell their crops in the market. Of the 78,000,000 sheep in the Argentine, fully 60,000,000 are to be found in the Province of Buenos Aires alone. Vast sheep countries still remain unstocked—in the north to the Argentine Chaco, in the west the magnificent Pampa Central, and in the south down to the Santa Cruz Territory. Already the spreading

of the pastoral industry is observable; Santa Cruz, Rio Colorado, and Rio Negro wools are now quoted in the market, and it is only the other day that these territories were unknown. To forecast the possible sheep-carrying capacity of the Argentine would be conjectural; but, guided by what the Province of Buenos Aires carries to-day, and the soil and climate of the surrounding provinces and territories, I have little hesitation in saying that the present capital of 78,000,000 could be *doubled* in twenty-five years without in any way overstocking the country.

CHAPTER II

OF THE PRESENT STATE OF THE SHEEP STOCK IN THE ARGENTINE

THE greater portion of the sheep stock in the Argentine is of the fine-woolled or merino sort. The two principal classes which have served as prototypes are the Rambouillet and Negretti, the former being the more popular owing to its superior size. These two great branches of the Merino family have served as standard types up to which the general breeder aspires to refine his stock. The common fine-woolled flocks all resemble more or less one of these two classes, in proportion to the amount of care and outlay which have been expended by their owners to obtain rams of first-class quality. The number of pure Rambouillets and Negrettis is of course very limited, and the common flocks are classed as *mestizos*, a term specially applied to the sheep which have no other blood in them than that of the primitive *criollo* improved by crossing with the *merino*. The Australian merino has been introduced upon one or two occasions without obtaining much foothold with the Argentine breeders, who, upon comparing the Australian animals

they saw offered for sale with their own stock, found the latter better types of their ideal. The Vermont has been introduced from North America, and has done well when crossed with the Rambouillet.

A number of breeders in the north of the Province of Buenos Aires have had the foresight to resist the general rush to cross the merino with the long-wool, and have preferred to keep their sheep pure in the face of a falling market. Others have contented themselves with preserving one or two of their best flocks pure, and have crossed the remainder of their stock with long-wools. It is probable that at the present time nearly one-half of the total sheep in the Argentine own to one cross or more with the Lincoln or Leicester breeds, principally with the former. The pure merinos or mestizos, that is those entirely free of contamination with the long-wools, are chiefly to be found in the north and west of the Province of Buenos Aires, in the Provinces of Cordoba, Santa Fé, and Entre Rios, and the Pampa Central. A few runs are still to be found in the east and south of the Province of Buenos Aires where there are pure merino flocks, but these are generally standard farms which have obtained celebrity for their produce, and command a market for their rams and increase. Judging from the continued and still-increasing demand for Lincoln sires, it may be presaged that in another four or five years the pure merino or mestizo stock left in the Argentine will be a very small fraction of the whole. The years 1888 to 1893 are

witnessing the conversion of 50,000,000 sheep from one type to another—a conversion probably without parallel in the annals of the sheep-breeding industry.

The Lincolns, or other long-wools, of a sufficiently improved breed to be entitled to rank above a cross—viz. the sheep whose fleeces bear all the characteristics of the home long-wool—are not yet very numerous, though each year of crossing greatly increases the number. The most popular of the long-wools is unquestionably the Lincoln. These have been largely imported from England and crossed with *mestizo* sheep, as well as bred pure. The wool sells well, particularly the first and second crosses, which topped the market in 1889 and 1890. The fleece of these first strains is heavy, and the wool healthy and fine, being considerably longer in staple than that of the merino, and still sufficiently soft to suit the manufacturer. The offspring of the long-woolled sire and the *mestiza* dam is healthy and vigorous, of a larger build than the *mestizo*, and a kindly fatterer,—more so indeed than the later crosses, which approach the Lincoln more closely in type. As the process of crossing goes on, the wool gains in length but loses in fineness. The Lincoln stamps his type upon the stock very rapidly. Other long-wools, such as the Leicester, the Cotswold, and the Romney Marsh, have been introduced without obtaining very general favour. The Romney Marsh, with its healthy frame and soft wool, may possibly become a greater favourite than it is at present, when the

general breeder has learned to distinguish, with greater discrimination than he can at present boast, the various classes of the English sheep. The Cheviot has also been imported, but in too small quantities to be worthy of notice; nor is it likely that this breed, adapted for a poor cold country, with an inferior fleece of irregular coarse staple and light weight, will find much favour in a land capable of carrying more productive though more delicate stock.

Not only does the Lincoln cross supply a saleable fleece of excellent quality and weight, but it also gives the European market the carcase most in favour with the public — a medium size of sweet flavour. The cross still preserves the delicate mutton so well known in all the merino breeds, and at the same time possesses, by reason of its Lincoln blood, a capacity for fattening not enjoyed by the pure fine-wool. When, however, the cross becomes of a too pronounced Lincoln type, the mutton loses its quality, gaining considerable weight in its place. The home markets look upon frozen mutton as an article so inferior to that produced in the Old World, that they have not yet pronounced in favour of any special breed; but the day cannot be far distant when this will cease to be the case, and then the coarse-grained pure Lincoln will fall into disfavour with the freezing establishments. There are breeders who hope to preserve the Lincoln-merino cross as a stamped type by crossing back to the merino again, when the wool becomes too lengthy and strong. Such an attempt is

not likely to be attended with much success, and the breed subjected to this treatment will become a prey to all the caprices of atavism. More profitable would be a practice of selection, carried out on the same scientific principles that have served to form all the typical breeds of the world, to produce a sheep which should most happily combine a good carcase with a good fleece, holding always in view the particular requisitions of the country in which it is to live.

Of the mutton-sheep proper, the Down, there need be little said here, the number in the Argentine being too limited to merit much attention. Nevertheless some breeders have successfully introduced the South Downs and Oxfordshire Downs—especially the latter—into their flocks. A cross between these sheep and the merinos is not so felicitous with respect to the wool as that between the merinos and the white-faced long-wools. The Down sheep all suffer alike from diseases of the foot, and these diseases are easily contracted in this country. Moreover, they assert the harsh staple of their wool in the cross, and the fleece is neither of great value nor weight. The black-faces may possibly succeed in the arable parts of the country, but they are little adapted for the pastoral lands which form the greater portion of the Argentine. Wool is, and must ever be, a first consideration in this land, and it is upon this account, if upon no other, that the Down sheep can never become very popular in the River Plate.

To attempt to mark with exactitude the natural

sheep divisions of the country would be an impossible task. The general demarcation as shown on the accompanying plan of the Province of Buenos Aires, gives an approximate idea of the distribution of sheep in that province,—by far the most important one of the Argentine Republic. The general divisions here shown are as follows:—¹

	Area in sq. miles.	No. of Sheep.	Average No. per sq. mile.
Section I. . . .	48,415	48,144,000	995
„ II. . . .	36,840	14,279,000	388
„ III. . . .	18,260	2,417,000	132
„ IV. . . .	6,770	523,000	77
Province of Buenos Aires	110,285	65,363,000	592

It should be remembered that this is treating of sheep alone, in addition to which there are 10,422,000 head of cattle, as well as 2,020,000 horses and mares in the Province. Further, the land devoted to agriculture, being about 5000 square miles, and the land taken up by townships, etc., has not been deducted from the area calculated as grazing or pastoral land. Admitting that a cow consumes as much forage as five sheep, and a horse as much as seven, then the natural pastures of the Province of Buenos Aires maintain stock at the rate of 186 sheep per 100 acres

¹ I have extracted these figures, and all others employed in showing the distribution of stock in the Argentine Republic, from Messrs. M. G. and E. T. Mulhall's *Handbook of the River Plate*, 1892 edition.

per annum! And this is taking the average of a whole Province whose area is over 110,000 square miles, or nearly equal to that of the United Kingdom. It is doubtful if such a great live-stock bearing territory, where the natural pasturage is all the forage consumed, could be found in any other part of the world. The average rainfall in this Province is 30 inches, the fall being less in the south than in the east and west. The atmosphere is somewhat humid, more especially in the east. Owing to this circumstance, and also to the proximity to the meat markets, this is where most of the long-wools and their crosses flourish.

The remainder of the sheep in the Argentine are to be found chiefly in the Provinces of Santa Fé, Entre Rios, and the Territory of the Pampa Central. In the map facing page 41 an idea is obtained of how these sheep countries are situated. The Province of Santa Fé is the chief agricultural department of the Republic, but it also boasts some excellent pasture land, and many eminent breeders have runs there. The rainfall, taking the average of three different localities, Rosario, Santa Fé, and Reconquista, is, according to Mr. Fleiss, 42.20 inches per annum, but it is probable that the general average rainfall over the whole Province is considerably less than this. Entre Rios is held by many to be the next most important pastoral Province, after Buenos Aires, in the Republic. Most of the land in the south of this State is well adapted for live stock of all kinds, though estates bordering

on the two great rivers which bound the Province are subject to the defect of swampy lands where the sheep do not thrive. Nevertheless there is a promising future for the pastoral industry in this Province, and transport is greatly facilitated by the two mighty rivers, the Parana and Uruguay, between which this Mesopotamia of the Argentine lies. The climate is a moist one, and the annual rainfall is stated by Mr. Mulhall to be 44 inches. Turning again to the south we have the magnificent Department of the Pampa Central, which was only opened up to the pastoral world in 1880. Ten years ago there was scarcely a flock to be found in this State, and now the number of sheep is estimated at 6,000,000. The land is undulating, in places covered with trees, though nowhere are the woods dense. The soil is light and sandy, the rainfall slight, and the atmosphere a dry one. Merino sheep thrive well here, and this State is undoubtedly best adapted for the fine-woolled breed. South again of the Pampa Central lies the Territory of the Rio Negro. This State is but little known, and though much of it belongs to the rocky and sterile Patagonian formation, there is good sheep country to be found. Already along the banks of the Rio Negro there graze large flocks of sheep. South of this Department lies that of Chubut, and south to that again the Department of Santa Cruz. In one division of this last-mentioned State, viz. in the Rio Gallegos division, there has suddenly sprung into life a thriving sheep-breeding industry, and the wool grown there has

already become a quotation in the London market. Though a great portion of Patagonia is rocky, barren and unsuitable for the rearing of live stock, there are nevertheless districts within its vast limits destined to become some day important sheep countries.

Returning to the north again, we have the important Province of Cordoba, in which are to be found numerous sheep farms of note. These are chiefly in the south of the State. But the acknowledged existence of sheep in the north of this Province, as well as in the Provinces of San Luis, Corrientes, the Santa Fé Chaco, Salta, etc., prove that bleaters will eventually thrive and do well in the north of the Argentine Republic, and their introduction is but a question of immigration and time. From this brief survey of the country it may be appreciated what a great area still remains to be occupied with the sheep-breeding industry.

The following table of the distribution of sheep in the Argentine Republic is compiled from the most reliable data to be obtained from the returns of 1891. It cannot be considered a perfectly accurate statement, though generally speaking the proportions are very near the mark. Students of live-stock statistics are aware how difficult it is to obtain authentic statements, and how frequently a comparison of tables by different authorities leads to discrepancies which become quite unmanageable. By the following table the total number of sheep is shown to pass 85,000,000. This number is probably in excess of the actual sheep census for 1891, which has been stated elsewhere to be

78,000,000. The probable number may be taken to be not more than the former estimate nor less than the latter.

State or Department.	Estimated pastoral area in sq. miles.	Number of sheep.	Average number per sq. mile.
Buenos Aires	110,285	65,363,000	592
Entre Rios	30,000	4,900,000	163
Corrientes	22,000	610,000	28
Santa Fé (south)	23,000	2,400,000	104
Santa Fé (north)	27,000	520,000	19
Cordoba	45,000	1,386,000	31
San Luis	20,000	240,000	12
Santiago del Estero	25,000	780,000	31
Salta	36,000	160,000	5
Pampa Central	65,000	6,000,000	92
Río Negro	85,000	2,520,000	30
Neuquén	45,000	115,000	3
Chubut	240	17,200	72
Santa Cruz	48,000	26,500	...
Gallegos	10,350	116,000	11
	591,875	85,153,700	142

To show the present state of the wool production in the Argentine, I cannot do better than quote the *Handbook of the River Plate*, in which the figures and tables all come from the able hands of the eminent statistician, Mr. Michael G. Mulhall:—

“The growth of sheep-farming is shown by the export of wool and the estimated number of sheep, as in the following table:—

Year.	Sheep.	Wool, lbs.	Lbs. per Sheep.
1830	2,500,000	6,000,000	2·3
1840	5,000,000	13,000,000	2·6
1850	7,000,000	21,000,000	3·0
1860	14,000,000	45,000,000	3·2
1870	41,000,000	137,000,000	3·3
1880	61,000,000	215,000,000	3·5
1891	78,000,000	310,000,000	4·0

“It appears that in the last forty years, while the number of sheep has multiplied eleven-fold, the wool-clip has increased fifteen-fold, three sheep at present yielding as much wool as four did in 1850. The relative importance of Argentina in the wool-clip of the world is shown thus:—

	Sheep.	Wool, lbs.	Lbs. per Sheep.
Europe . . .	197,700,000	860,000,000	4·3
United States . .	43,500,000	320,000,000	7·2
Australia . . .	96,600,000	420,000,000	4·4
Argentina . . .	78,000,000	310,000,000	4·0
Other Countries . .	27,500,000	120,000,000	4·4
The World . . .	443,000,000	2,030,000,000	4·5

Argentine wool finds its way principally to Germany and France. The manufacturers of both these countries send buyers out in the wool season, and most of the wool is sold to them in the local Buenos Aires markets. Some breeders bale their wool and remit it to the European markets for sale there, but these are chiefly English sheep-owners, and the number of them is small. Wool is not washed on

the sheeps' backs, but is all sold dirty and in the grease.

The disposal of sheep for food in 1891 may be taken as follows:—

Consumption at home	5,600,000 head
Exportation in frozen carcasses and live stock	1,200,000 „
	6,800,000 head
Total	

Taking the capital in sheep for 1891 at 78 millions, this disposal of butcher stock is equivalent to $8\frac{1}{2}$ per cent. Calculating the increase per annum at 16 per cent, this leaves $7\frac{1}{2}$ per cent augmentation of sheep per annum. At this rate, and presuming that consumption and exportation grow proportionately, the number of sheep in the Argentine by the end of the century will reach 150 millions.

The merino wools grown in the Argentine can compete in fineness, length of staple, and elasticity with those from any other quarter of the globe. Taken in its total annual return, the merino wool of this country is probably inferior to that of Australia. The general breeder is not so careful of his stock and the tups he puts to it, and the result is that the unquestionable excellence of a portion of our animal produce is counterbalanced by a great deal of comparatively worthless rubbish. Where care has been taken to breed good stock the return has been highly satisfactory. Along the seaboard of the Atlantic the merino does not give the same result as in the interior. The wool becomes looser, the fleece less elastic, and the

staple weak. Nor need this be wondered at, for the flocks in that district suffer greatly from foot-rot, and two-thirds of every flock are upon their knees most of the year. The merino does not suffer from the ravages of scab to the same extent as the long-wool. It is also more easily shepherded, the flock always keeping together when feeding. For the latter reason the same run can carry more merinos than long-wools to the acre. Land of average first quality in the Province of Buenos Aires will carry $2\frac{1}{2}$ sheep to the acre in addition to one cow to every five acres, and this without the aid of extra or artificially-grown forage. Well-bred mestiza sheep will give an average of $6\frac{1}{2}$ lbs. of wool in the grease, washing out at from 35 to 40 per cent.¹ Such wool is worth at present from $6\frac{1}{4}$ d. to 7d. per lb. The lambing commences in the month of March, and lasts until the first week in May. The lambs are thus weaned in the early spring. Good merino sheep are at present at a discount, and stock capable of giving the returns I have quoted can be had at from 4s. 6d. to 7s. each, an all-round lot including lambs, shearlings, two-shears, three-shears, aged, and wethers. Tups of a first-class quality, bred from pure Rambouillet or Negretti sires, and dams sufficiently improved to entitle them to rank as pure, can be had from £2 : 10s. up to £10 each. The mestizo wether is saleable when a two-shear, and at that age should give, if well bred

¹ *i.e.*, when the fleece has been scoured, 35 to 40 per cent of clean wool remains.

and tended, a dead weight of from 45 lbs. to 55 lbs. Such mutton is worth from $1\frac{1}{4}$ d. to $1\frac{3}{4}$ d. per lb. to the producer, the skin being included for nothing in this price. But too frequently the mestizo wether cannot show sufficient condition and weight to qualify him for the frozen market, and his value in that case is considerably less. The merino sheep do well on all the native grasses, and where there is a dry climate and soil they thrive excellently. As has already been stated, they attain a great size, the pure Rambouillet and Negretti born in the country generally passing in frame his imported ancestor.

The long-wools and their crosses are at present in such high esteem in the country that the prices paid for them are disproportionate to those paid for the merino. They thrive equally well upon the humid lands of the seaboard and the dry soil of the interior. As they approach the pure long-wool in type they suffer more from scab, and the disease appears to be more tenacious when once it attacks them. On the other hand they are not subject to foot-rot, and can walk a greater distance for food than their merino relatives. The long-wools feed in a more independent fashion than the merinos, and are to be seen scattered in groups of twos and threes when grazing, and never in a mob as is the case with the fine-wools. They are of a less timid nature, and do not fly at the sight of a horseman or dog, which is the case with the mestizos. It is more convenient to keep them in paddocks when

feasible, as owing to their characteristic independence it is no easy matter to shepherd them and keep them from mixture with their neighbours. They fatten kindly upon any of the Argentine sheep grasses, and do not suffer from parasitic epidemics to the same extent as the mestizos. In the years 1886 and 1887, when the bronchial or lung-worm (*Strongylus filaria*) invaded the merino flocks and occasioned heavy losses in the low-lying districts, the long-wools which grazed almost side by side with the mestizos appeared to remain indifferent to the attacks of the parasite, which was decimating the fine-woolled stock. The same occurred in 1889 when the lung-worm occasioned very serious losses, and it was the result of this year that brought the Lincolns into general favour. The superior constitution of the long-wool assisted him in resisting the invasion of this terrible pest.

The long-wool requires more space than the merino, and land of average first-class quality in the Province of Buenos Aires will carry two to the acre as well as one cow to every five acres, without the aid of extra or artificially-grown forage. Such sheep will give an average fleece of from $5\frac{1}{2}$ to 7 lbs. of wool in the grease, washing out at from 50 to 60 per cent. Such wool is worth at present from $6\frac{1}{2}$ d. to 8d. per lb. in the grease, and from 6d. to $7\frac{1}{2}$ d. per lb. when the type of staple has become a distinct long-wool. The lambing commences in the month of June and lasts until the end of

August. Though the price per lb. obtained for the fleece of the Lincoln type is less than that for the wool of the earlier crosses, the return of the former is superior in weight. A well-bred long-wool which has acquired a Lincoln type gives from $7\frac{1}{2}$ to $8\frac{1}{2}$ lbs. per head, without the aid of extra forage. The cross sheep are worth from 6s. up to 11s. each, in proportion to the amount of crosses they own to. The long-wool, that is the sheep which has been bred up to a sufficient standard to distinguish it from the Lincoln cross, is sold at from 15s. to 30s. per head. The latter are not easy to acquire, as the breeder will not readily sell, finding it more remunerative to keep all his increase and breed tups for the market. These prices quoted for the long-wool are undoubtedly temporary, and they will fall as soon as the breed becomes generalised. Tups of a first-class quality, bred from pure Lincoln sires and dams sufficiently improved to entitle them to rank as such, can be had at from £2:10s. up to £10 each. The wether can be sold as a shearling, in which case he will give from 54 to 65 lbs. dead mutton, worth from $1\frac{1}{2}$ d. to 2d. per lb. for the producer, the skin being thrown in at this price. If kept until a two-shear he will give from 58 up to 75 lbs. dead mutton, worth the same price per lb. as the shearling. High prices have been recently obtained for Lincoln crosses for exportation alive; up to 20s. has been paid for a big

framed wether. This price may also be considered as occasioned by exceptional circumstances, and in excess of the normal value of the animal. Nevertheless the long-wool produces a carcase which is generally preferred by the butcher—the average weight being sufficient to meet the public demand, and the mutton of a good quality. But it should be held in mind that there are few long-wools of a pure Lincoln or Leicester type in the country, and that it is impossible to judge how long the prices will be kept up, if the introduction of pure sheep of these breeds continues. With respect to this problem—the question of how to combine wool with a butcher carcase—there will be some remarks found in another part of this book.

In treating of the different breeds of sheep in the Argentine and their respective merits and produce, we come again to the black-faces, such as the South Down, Oxfordshire Down, Shropshire, etc. These have been introduced from time to time, but, as has already been stated, without obtaining much popularity with breeders. It must be held in mind that this class of sheep is best adapted for arable land, and that in the Argentine Republic the practice of combining agriculture with stock-raising does not yet obtain. On the other hand the breeder finds that the black-faced sheep produces a poor fleece, light in weight and of no great value. The mutton is undoubtedly of a finer quality, but the freezers do not yet recognise the *quality* of mutton in a

sufficient degree to encourage the breeder. Moreover all the black-faced breeds suffer from foot-rot, and in the mutton-growing districts of the Argentine, where the climate is humid, foot-rot is one of the most baneful scourges. The consideration of this breed may therefore be dismissed with this short notice. It is improbable that at any time the Down sheep will become plentiful in the Argentine.

The question lies to-day between the merino as represented by the Rambouillet and Negretti breeds, and the long-wooled white-face as represented by the Lincoln. At present the amalgamation of the two races has supplied us with a good useful sheep, combining excellent conditions in both wool and mutton. Whether the breeder is to continue crossing towards the type of the long-wool, or return again to the merino, is a problem which he must solve according to the situation of his property, his proximity to, or distance from, the market, and the nature of the soil and climate.

The following may be taken as a rough distribution of the two great families of bleaters :—

1. If the land be situated conveniently near the seaboard and the mutton market, the rainfall a moderately heavy one, the climate humid, and the soil underfoot inclined to be swampy or damp, the grass of a tender, lush, and nutritious nature—then the best sheep to breed is the long-wool of a more or less Lincoln type. Lands of this description are those to be found principally in the Province of

Buenos Aires, in that part of it nearest the seaboard, and so on to the south, possibly so far towards the extremity of the continent as the Department of Santa Cruz. This is the field where mutton is of as great importance as wool, and where the food for a considerable part of over-crowded Europe can be grown. Here the breeder should always have in view the mutton market, endeavouring to produce on the carcass as good a fleece as he can without sacrificing the meat-growing qualities of the animal.

2. If the land be situated at so great a distance from the market as to render it almost unattainable for want of inexpensive railway communication, if the rainfall per annum be under 26 inches, the ground dry underfoot, and dews unfrequent, the atmosphere fairly dry, the grasses strong, nourishing, and of the family belonging to healthy dry soils—then the best sheep to breed is the merino of a more or less Rambouillet type. Here the mutton question takes a secondary place, and the breeder should think chiefly of the fleece. Here the golden fleece of merino silk can be grown to perfection, and the delicate bleater walk foot-whole in search of his food. Lands of this description are to be found in the north and west of the Province of Buenos Aires, in Santa Fé, Cordoba, in the Pampa Central, in the back lands of the National and Provincial Territories stretching westwards to the feet of the Cordilleras, and south to the shores of the Neuquén. These are

the lands destined to be the home of the merino, and not even the perfect herbage and climate of Australia Felix will surpass the wool-producing qualities of these lands which to-day well-nigh go a-begging for purchasers.

By following the principle roughly set out here, of studying the special conditions and situation of the land, there is no danger of upsetting the equilibrium of the production of mutton and wool. Either breed has its special home where it thrives, and the same great country can grow the well-coloured carcase for the home consumer and the soft superfine wool for the home manufacturer.

Before terminating this chapter, it may be interesting to note how the Argentine wools fared in the great Paris International Exhibition of 1889.

Of 236 prizes given to the exhibits of wool, 102 were won by the Argentine Republic, of which 23 were gold medals. The following is the proportion allotted to the competing countries :—

	Gold medals.	Total prizes.
France	4	6
Australia	10	27
Cape of Good Hope	3	14
Argentine Republic	23	102
Other Countries	14	87

CHAPTER III

THE SELECTION, PURCHASE, AND ADMINISTRATION OF A SHEEP FARM

So much depends upon the intelligent administration of a sheep farm, that the writer has ventured to treat in some detail most of the natural occurrences and events relating to the business. Much that is here written is already well known to Argentine breeders, but it is not so much for them that this book is written as for those who look upon the Argentine Republic as a new home, wherein to invest their capital and take up their residence. For them it will be of interest to learn what occurs in the monthly routine of a sheep-run, and by reading it their appreciation for this field of emigration will be rather heightened than the reverse. They will also perceive how little care and attention are required to make the industry a successful and remunerative one, and it will prepare them to a certain degree for what they may expect if they ever select this grand country for their home.

And first, of the classes of land, and their capacity for carrying stock.—The general description of the

sheep country in the Argentine is the same : an even prairie free of mountains, rocks, or stones ; a good vegetable soil varying from nine inches to three feet in depth, in places followed immediately by the semi-petrous *tosca* or Pampa-clay formation, in others by successive strata of earth, sand, and clay, but ever formed upon the *tosca* bed. This soil produces the most nutritious grasses, including Italian rye, trefoil,¹ lucern, cocksfoot, timothy, wild oat, and every grazing herbage, all of which will grow equally well when introduced. But it is not necessary to lay down grazing plants, for all the better sorts are to be found there already. There is a plentiful water supply in all the sheep country, partly in the shallow lagoons and little sluggish streams which traverse the Pampa, and partly the surface water at a distance of from six to thirty feet from the surface, making the introduction of wells a matter of little cost. In the far west, where the elevation of the Pampa is higher, water is not to be obtained so near the surface. The climate is a salubrious one, without extremes of either heat or cold, and seldom visited by storms of great violence. The average rainfall is from twenty-six inches in the drier parts up to thirty-six inches in the moister ones. There is little or no natural wood, nor are there any harmful bushes to tear the wool from the sheeps' backs. There are few plants bearing burrs offensive to the fleece ; and indeed that one which is most frequent in the country, namely, the *caretilla*,

¹ *Medicago denticulato* ; it is incorrectly called *trifolium*.

or trefoil burr, comes from one of the richest and most milk-giving grasses, and is highly esteemed despite the depreciation it causes in the value of the wool. The burr of this plant does not come away until toward November, and consequently after the sheep are shorn; and those gathered on the fleece during the autumn are in great part washed off again by the winter rains.

The following valuable remarks upon the Pampa are taken from Professor P. G. Lorentz's article on this subject subscribed to a work on the Argentine Republic which was prepared by Mr. R. Napp for the Centenary Exhibition at Philadelphia:—"The idea which we had formed from our childhood by reading popular works, that the Pampa is a perfect level, is entirely inexact. The soil is slightly undulated, and though at first sight the elevations and valleys are little remarked, they are soon recognised by the difference of the vegetation. These undulations are of the greatest practical importance to the inhabitants, and particularly so to the European immigrant who dedicates himself to agriculture in preference to grazing. Rich farms and flourishing communities, where the waving wheat attracts our attention, satisfactorily prove this assertion.

"These agricultural settlements are particularly met within the CAÑADAS or flat depressions, at the bottom of which small lakes are often found, which provide the necessary water for man and beast: but when failing these, it can nearly always be procured

by sinking shallow wells. In these valleys nature also indicates, by the tender herbage intermixed with flowers, those conditions most favourable to vegetation, and there the cultivated plants find a relative abundance of water and a rich virgin soil, charged with soluble and nutritive mineral substances."

In writing of the flora of the country the same author continues:—"The principal characteristic in the Pampa formation is the complete absence of ligneous plants, with the exceptions mentioned below. We do not know a single tree, nor yet a bush, which belongs to this formation, whilst another characteristic is the predomination of the *Gramineae*; the Pampa is really a rich pasture-ground. The flora is poor and monotonous, it being here where the rule which governs all Flora Argentina is particularly demonstrated; viz., that the predomion of the social plants usurps and diminishes the diversity of species, above all in a country born of the waves of the sea, within a relatively short period—a rule which singularly facilitates the task of the agriculturist and the grazer, because the social plants are exactly those which are of the greatest importance to these occupations.

"Therefore great herds of cattle took possession of these pastures, where in the beginning they bred and increased without the intervention of man. Thus, as some few seeds of many European plants have fallen upon the fertile soil of this Republic, germinating and producing new seed which has

increased and conquered the indigenous plants in the struggle for existence, so also multiplied the reduced number of horses and cows which were imported, and formed immense herds without the aid of man. Thus these pastures, so favourable for the raising of cattle, constitute the chief interest of the Pampa. The Pampa changes its aspect owing particularly to the browsing of the sheep, which causes the hard and isolated grasses to disappear, and replaces them by a compact pasture of tender and shorter herbage.”

¹ “The inhabitants of the plain distinguish two species of grasses relatively different; one of them has received the general name of PASTO DURO—hard grass, and the other that of PASTO BLANDO²—or soft grass. The first consists essentially of *Gramineae*, which produce up to the period of flowering an excellent nourishment, that on account of its length and hardness is better for cows and horses than for sheep. It dries after flowering, and then its leaves become as hard as straw, and lose the greatest part of their nutritive substances; nevertheless the animals can subsist upon it still for some months.

“The soft grass is composed partly of *Gramineae* more or less tender and savoury, which the inhabitant of the country knows under the name of GRAMILLAS; it is partly composed of some herbaceous and savoury plants. Of the last we will only mention the most

¹ Extracted by Prof. Lorentz from a pamphlet by Messrs. Heusser and Claraz.

² PASTO TIerno.

generalised, viz. two species of TREBOL—the ordinary clover and the sweet-scented clover; a species of *Erodium*, called ALFILERILLO, especially found in arenaceous soil; and the spotted thistle—CARDO ASNAL—whose leaves are an appetising nourishment for both sheep and horned cattle. Until the formation of the seed, these annual plants constitute a truly excellent and agreeable nourishment, especially for sheep; but after the maturity of the seed they entirely die, and when there is an extraordinary drought, the soil is left completely bare, to such a degree that the animals are reduced to eat such seeds and dry remains of these *Gramineae* as may be found. There are broad districts, particularly in the southern portion of the Province of Buenos Aires, where every summer they are so entirely stripped of vegetation that the animals, not finding any nourishment, have to be transported to other points.¹ In the virgin fields of the Pampa, the two grasses are mixed. In general the PASTO DURO predominates in the more elevated points, whilst the TREBOL and the ALFILERILLO are only seen between the isolated tufts of the grasses; i.e. the TREBOL, or clover, in the argillaceous soil of the north, and the ALFILERILLO in the arenaceous soil of the south.

““This last plant, which spreads even to Chile, always springs up afresh in all seasons after rain. The first has the same property, but it also has the disadvantage that its seeds are a species of burr, called

¹ This is no longer the case.—H. G.

here CARETILLA, which sticks in the wool and diminishes its value. In the lower parts of the true Pampa the sweet-smelling clover and the soft *Gramineae* abound. In the quagmires a miry vegetation similar to that of Europe is found, among which various species of *Carex* are conspicuous. The plants of this genus are called PASTOS AGRIOS¹—bitter pastures—by the Gaucho, as a contrast to all the others already mentioned, which he calls PASTOS DULCES—sweet pastures. An aquatic vegetation exists on the shores of the rivers and lakes, which corresponds to that of Europe; that is to say, it is of the same genera represented by different species—a *Dypha*, a *Phalaris*, etc. A species of *Gynerium* is produced also, properly belonging to the Pampas, which is quite generalised, and whose size is a proof of the humidity and excellent quality of the soil; it is called the CORTADERA. By and by, some species of the group of the *Agaves* called CARDAS are found, which it is necessary not to confound with the CARDOS already mentioned. The first are plants which belong to the natural flora of the country, whilst the second, although very abundant, were imported. On the south both the soil and the vegetation become more and more salty; saline efflorescences are found scattered over the whole of the Province of Buenos Aires, and real salt beds of common salt, more or less fine, appear in the west and south. A vegetation of salt plants, of which the commonest are the *Salicornias*, called here JUME, is

¹ PASTOS AMARGOS.

found on the edges of these deposits, as well as on various points of the coast.

“ ‘This abundant distribution of salt in the fields of Buenos Aires gives them a great advantage over those of the north. In the central parts of the Province of Entre Rios, we have seen that the animals travel over distances of several hours, looking for the salt earths to lick them.’ ”

Having purchased his land, the farmer should study the stock-carrying capacity of it, the nature of its grasses, the climate, and the elevation of the land in order to determine what class of sheep is best suited for it, and the number he may venture to introduce per square mile, as well as the amount of cattle necessary to keep down the stronger vegetation and improve the herbage. The farther he travels from the heavily-stocked lands of the seaboard, and from the populated centres, the more sparse and coarse will he find the vegetation. This is but the natural state of the unstocked and virgin lands he has selected; and it is only a matter of years, and the grazing of cattle and sheep upon the land, to bring its herbage to the same quality and fineness of that found upon the older and more valuable lands.

Shepherding.—The primitive, and even to-day general method of tending sheep is to shepherd them. A flock of from 1200 to 2000 head (the latter number being far too great) is placed under the charge of a shepherd, who is frequently paid with a fourth part of the profits accruing from the flock. He is sup-

plied with a house, an enclosure for a garden, and a yard in which to work the flock. He is allowed, in some cases, to kill out of the flock when he requires mutton, and in others he is supplied with meat from the head station. If he is paid by a profit-share of the flock, he supplies himself with all the necessaries of life, and finds himself in horses; if on a monthly wage, these are generally supplied by his employer. The usual monthly wage is equal to from 50s. to £4, and perhaps a small sum for each lamb marked and tallied. He is allowed to grow as many vegetables as he wishes for his own consumption, as well as to keep hens and other domestic fowls, and a pig or two if he wishes it. The employer generally provides him with a milch cow, and expects him to tame another one brought from the mob. His monthly rations consist of $12\frac{1}{2}$ lbs. of *yerba* or Paraguayan tea, or its equivalent in Asiatic tea, 6 lbs. of rice, and salt. Others allow him 25 lbs. of "camp" or sea biscuit, and 8 lbs. of sugar as well. If he is paid by a profit-share he is expected to find all these things himself.

His duties are to tend his flock day and night; to keep it from mixing with other flocks which run on the same estate when there is no divisionary fence between the several runs; to keep it free from scab and other contagious and accidental diseases; to keep dogs off, and see that no sheep wanders astray;—in short, to generally shepherd his charges. All this he does upon horseback, and dogs are seldom em-

ployed, as they run wild and cause great havoc. So great is the number of useless curs to be found in every small local town, and upon every estate where they are not strictly prohibited, that they are become one of the greatest scourges of the country, and breeders have got so exasperated at the losses sustained through their stock being worried, that they will not now discriminate between a prowling mongrel and a faithful collie, but banish them alike from their land.

This is shepherding in the open, without enclosing the flock in a paddock. The sheep wander away from the house in the morning in the direction whence the wind blows, and graze in the roundabouts of the shepherd's abode, returning in the evening to the *rodeo* or roding, in the vicinity of their pastor's dwelling, where they lie down peacefully to sleep until the morning. The system has the advantage in not occasioning any outlay, and the sheep tended in this manner possibly graze upon a greater variety of grasses than they would if limited to the circumscribed area of a paddock. But, on the other hand, they are more exposed to contagious diseases, and do not use the herbage of the land to its fullest advantage.

The paddock system is of recent introduction to the Argentine, and though it represents considerable outlay in fences, it is undoubtedly both economical in the long-run, and enables the breeder to place more stock on the same area. It is not always practicable, for in parts of the country where the land is low and intersected with swamps, the feeding ground varies

according to the season, and pastures which at one period of the year, or, indeed, perhaps during two or more years, are useless for grazing, become necessary to the stock in a wet or dry season as the case may be. In such districts it would be injudicious to put up too many divisionary fences, though some general ones would be of use, and help to reduce the annual working expenditure.

The use of paddocks has a fourfold advantage :—1. The reduction of working expenses. 2. The stock are at liberty, graze in freedom, and eat right up to the fence line. 3. Such contagious diseases as scab can be treated in a more thorough, systematic, and efficacious manner. 4. An improved breeding system, including the classification and grading of stock, can be practised. General paddocks of an area of from 3000 to 5000 acres may be fenced off, such paddocks being capable of carrying from 5000 up to 10,000 sheep, as well as cattle. The shepherd's duties are limited to riding daily through the enclosure, seeing that no sheep has fallen, got cast, or died through the night, revising the fence to see that it is in perfect order, and performing other offices of a similar nature. One man can in this manner tend up to 5000 sheep. Yards for working stock under these conditions have to be larger and more studiously constructed than in the case of sheep tended in the open. The most important points in this will be found in the plan of a yard given later on in this chapter. The stock being left at liberty are less sub-

ject to contagious disease, though great care must be exercised not to allow any epidemic, such as scab, to gain a foothold in the paddock. Treating with long-wools, the number kept in one enclosure should not exceed 4000 head, in the writer's opinion. With merinos a greater number can be allowed to run together, though even with these there is a limit, 8000 head being as many as it is judicious to keep in one paddock. Where the breeding is conducted with some discrimination, and the classes of sheep carefully studied, smaller paddocks are used, carrying anything from 500 up to 2000 head. One shepherd can attend to two, three, or four of such paddocks if his house be placed at the point of intersection of the divisionary fences. Wherever the land admits of it, the introduction of paddocks is convenient, and if they occasion additional outlay in their construction, the improved results on the sheep-farm will pay a handsome dividend upon the capital so employed.

Shearing.—This, the most important occurrence in the annual history of the sheep-farm, generally commences in the first fortnight of October, and should be terminated before the first fortnight of December, before the grass seeds and burrs have begun to come away and get into the fleece. It is not customary to wash the sheep before shearing them. There is little supply of running water, and it is said that the grease of the wool preserves it better on its homeward journey. Manufacturers also state that ten pounds of greasy wool will spin out a

greater quantity of yarn, if remitted to Europe in a natural state, than the same quantity washed before shipping. This apparent inclination on the part of the European manufacturers to favour unwashed wool, together with the outlay connected with putting up an expensive washing plant where running water cannot be obtained, and the reduction of the time during which the sheep is handled, form sufficiently good reasons for shearing the wool in the grease.

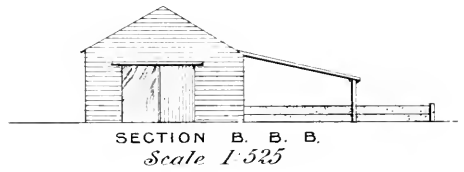
A plan is here given of a yard for shearing sheep. If the part where the sheep are shorn is roofed over, as in the accompanying sketch, it is a great improvement, and both men and sheep suffer less. The sheep are driven into the yard and caught by men whose whole duty is to attend to this department. They tie three legs of the sheep together, and place the animals conveniently near the shearers, the legs being tied with a thong made of teased rags or sheepskin. These men are paid from 12d. to 15d. per hundred, and one catcher is supposed to be sufficient to supply ten shearers. The shearers are paid from 7s. to 10s. per hundred. Operations are begun at the shoulder, after which the neck wool is removed, and the shears work back over the ribs and quarter; the belly wool is left until last, and removed separately. Each shearer should have a small pen, capable of holding from 15 to 20 shorn sheep, and as he finishes the shearing of an animal he turns it into this small enclosure. When the pen is full he

SHEARING SHED AND YARDS

Dimensions of Shearing Yard 42 m. x 13 m.

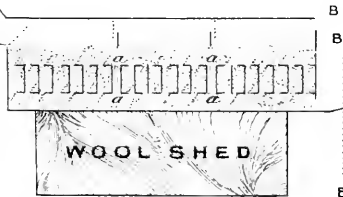
" " *Shearers' Pens* 2 m x 4 m.

a a. Passages bet. Shearers' Pens



UNSHORN SHEEP

SHORN SHEEP



Scale in Metres

1:1050



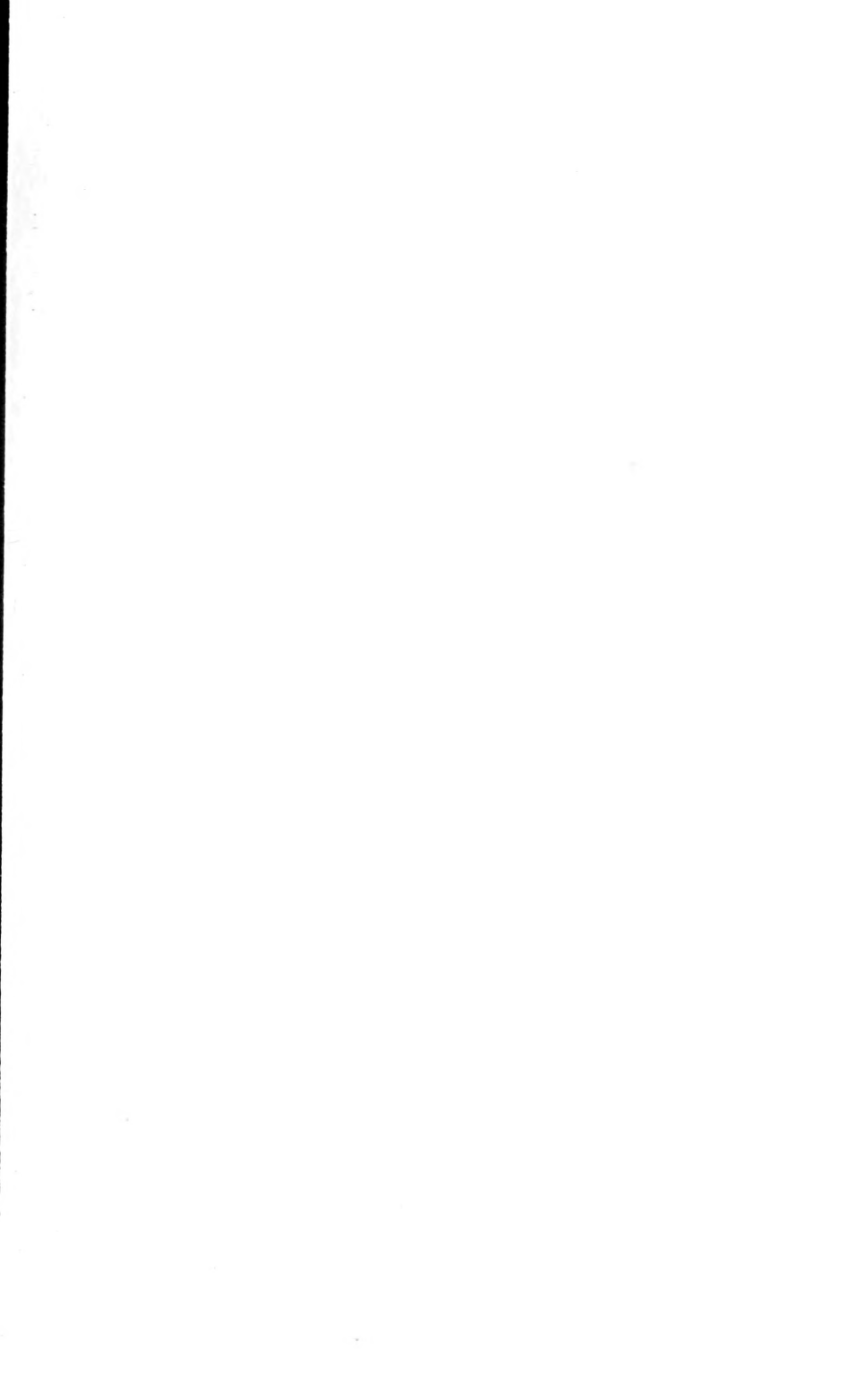
calls the overseer, who revises the shorn animals, and if they are all carefully clipped, free of cuts, and all the leg locks neatly removed, he counts them out, giving the shearer tokens for the number. If he finds any badly shorn he reprimands the man; if the offence is repeated he discounts the badly-shorn animals; and if carelessness continues he dismisses the shearer. I may here remark that the shearers and other men employed at the work—the former being chiefly natives, and the latter Spaniards, Basques, and Italians—are all obedient and attentive to their work, and there has been no experience of the strikes and troubles created by the same class of men in Australia.

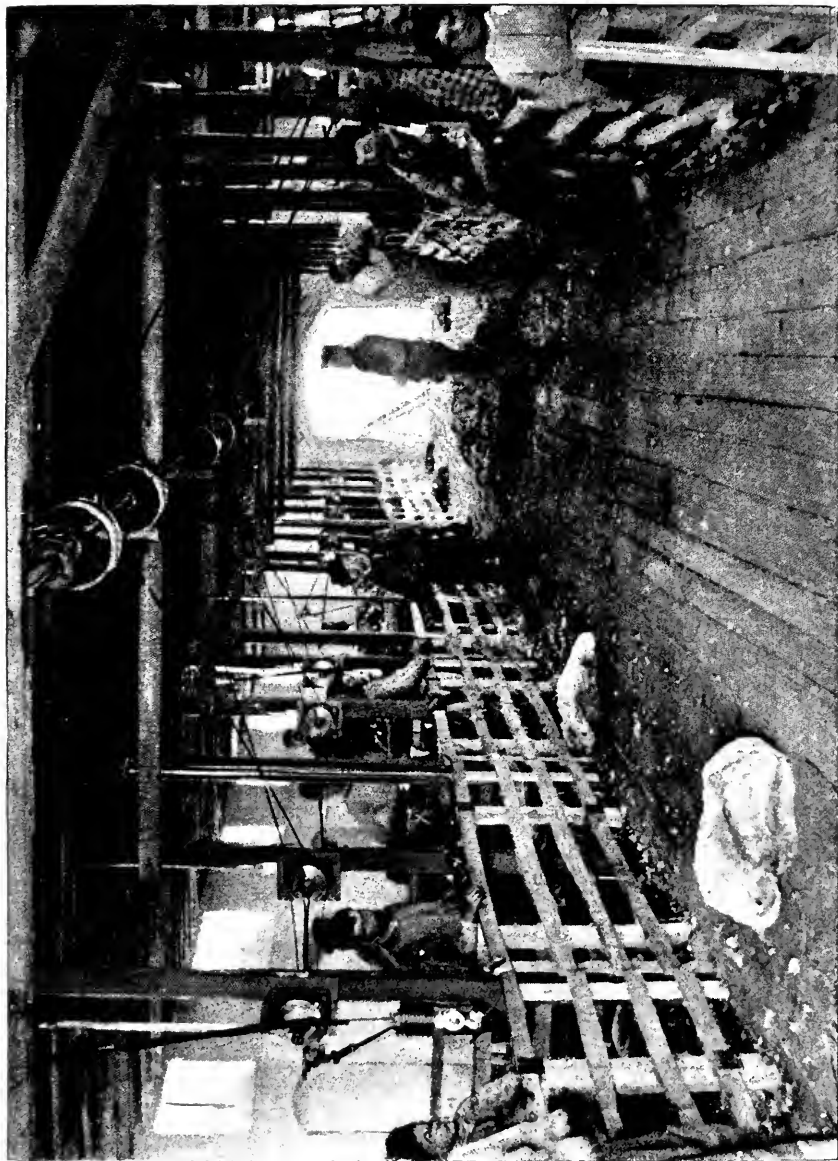
The fleeces are collected by boys, who earn a monthly wage of from £1 : 10s. to £2, and carried by them to the tying tables. Where there is a wool-shed connected with the yard, as in the plan facing page 72, there are long horizontal shutters, or open windows, in the wall of the shed nearest the yard, and the tying tables are placed underneath these windows at a height of three feet from the ground. Here each fleece is rolled up separately, with the under wool on the outside, and tied in a neat parcel with jute twine. It is to be hoped that in a few years this objectionable habit of tying with twine will be abandoned, the small pieces of twine getting into the fleece and causing trouble to the manufacturer. The wool-tyers, who also bag up the wool, are generally contracted for by the piece, receiving from 14d. to 16d. per

hundred. If the fleeces are to be classified for the home market they are thrown by the wool-tyers to the centre of the classifying floor, where the sorter separates them into their corresponding divisions. If the wool is for sale in the Buenos Aires market, or for delivery to a local buyer, the fleeces are bagged up immediately and stowed away. The belly wool and pieces are bagged separately. It is customary to shear the lambs at an early age, and not leave the wool on them until they become shearlings. The lambs' fleeces are not tied, but are bagged up on the shearing boards. The shearers are paid half-price for the lamb-shearing.

It is usual to employ as many of the permanent labourers of the estate as possible, but of course these are not sufficient, and others are hired from elsewhere for the shearing season. All alike get three meals per diem, viz. one at 8 A.M., one at mid-day, and one at sunset. The shearers are usually supplied with a ration of 1 lb. of *yerba*, or Paraguayan tea, per week, and the cooking is done for them by a man hired by the sheep-breeder. Payment can either be made by cheques upon some neighbouring store, or in cash. It is a rule only to pay out on Saturdays, and never to allow a labourer to withdraw more than 50 per cent of his earnings until the whole of the shearing is concluded and the hands paid off.

Shearing is commenced as early in the day as possible, and the morning dew is not, as some suppose, a motive for delay in beginning the day's work. In





SHEEP SHEARING BY MACHINERY.

To face page 75.

the writer's opinion the wool is all the better for having a little dew on it when removed from the sheep. It is well known that in Spain it is the custom to water the wool, after shearing, with a watering-pot,—*not* to increase the weight, but to freshen the staple. Whether there be any advantage in this is questionable, but wool never heats, nor is deteriorated, through having been clipped when the dew is still on the ground. Half an hour is allowed for breakfast at 8 A.M., and an hour at mid-day, but with these two exceptions the work continues steadily from sun-up to sun-down.

Shearing machines have been as yet little introduced into the country. The outlay occasioned by their instalment is a large one, and the question of fuel is a still more serious drawback to their adoption. The natives are rapid and neat shearers. An average man will clip from 40 to 50 sheep per diem. I have known an exceptionally dexterous man to shear 108 Lincoln cross sheep in one day, and deliver them all to the overseer neatly and properly shorn.

Drafting, Culling, and Sales.—Immediately after shearing, the breeder has two important matters to which to attend. The first of these is the scrupulous revision of his stock, to cure the scab and any other malady, and get all such disorders well in hand while the wool is still short, the stock healthy and strong, and the ewes empty. He should particularly endeavour to get his great enemy, the scab, subjugated, and daily revision and periodical dipping are

matters of first necessity. This subject is specially treated in another chapter.

He has also now to consider what stock is to be sold. The wool has been removed, and the sooner the sale stock are off the better. They are not going to give him any more wool or lambs, so keeping them a day longer than is absolutely necessary is a waste of money. The wethers of two years and upwards can go to the market as soon as they are fat enough. Aged ewes, defective ewes, or those unfit to suckle another lamb, should all be culled and fattened for the butcher. Every ewe which will not give a minimum fleece of 5 lbs. of wool, and rear a healthy lamb, is an encumbrance to the estate and should be sold off. Finally, he must select the inferior stock he intends to sell to brother farmers for breeding purposes, calculating the number he is going to sell of each of these three divisions of sale stock so as to reduce his flocks to their normal number.

The most important operation in this preparation for selling stock, is the culling of the flocks to select the most inferior in quality and dispose of them. All this inferior stock which he thus removes, and which represents the total remainder of what he has to sell, should be collected into one or two paddocks, for by this time he will probably have one or two vacated by the sales of wethers and shot ewes. This degraded flock is now what he has to dispose of, and he must content himself with a moderate price, as it is to his advantage to rid himself of his most inferior

stock. He should have a care however in this culling operation not to deal with breeding ewes with too heavy a hand, or his next year's lambing will be woefully curtailed. He should always bear in mind that a ewe which has given one or two lambs is never so filling to the eye as the virgin gimmer of 18 months, though the latter may be in reality the inferior animal.

This work and the attention to the health of the stock will keep the sheep-breeder busy until the month of April. The months between shearing and this date are those in which he must be ever up and doing.

By January he should have revised all the tups, rejected those whose quality and type are not up to the mark, and replaced them with others until the ram complement is made up. If he breeds merinos, this should be done by October, and the tups should be running in the flocks by the end of that month. If he breeds long-wools the tups should be in the flocks by the middle of December. In the case of the former class of sheep, lambing commences in March, and goes on through April and part of May; with the other breeds it commences in June and goes on until the end of August. In the south the lambing is generally later than in the north.

For the drafting, culling, and other manipulation of the flock it is of first importance to have suitable yards. A large enclosure, with a smaller one at the end of it, the sides made of dilapidated hurdles and

loose wires, where the sheep escape through half a dozen places, and where, to drive them into the smaller enclosure, or pen, a noisy troop of men waving sticks and coats and rending the welkin with uncouth yells, are employed—this is the sum of a description of the average sheep-yard in the Argentine. No proper drafting or culling can be carried on in such a yard; not only are the sheep unnecessarily fatigued and frightened, but the men themselves get tired, lose patience, and “scamp” the work. A sketch is here given of a twin yard, where whilst one flock is being worked through the dipping bath for scab, another one can be handled at the same time for drafting, culling, or similar purposes. This combination is a convenient one, as the more important operations in a flock are generally executed at a central spot, usually at the steading itself. It has moreover this additional advantage, that, when owing to rainy weather and constant working of flocks, one portion has got muddy and dirty, the other side can be used. The scale of this plan is one sufficient to work flocks not exceeding 1500 head in; but most of the appliances for a rapid and handy manipulation of stock are contained in it, and the scale can be increased to suit the convenience of the breeder. If a yard is required, independent of the dipping-bath plant, a suitable one can readily be designed on the same principle as the twin yard here represented. The following are the principles upon which all yards should be constructed:—*Form*, as circular as possible;

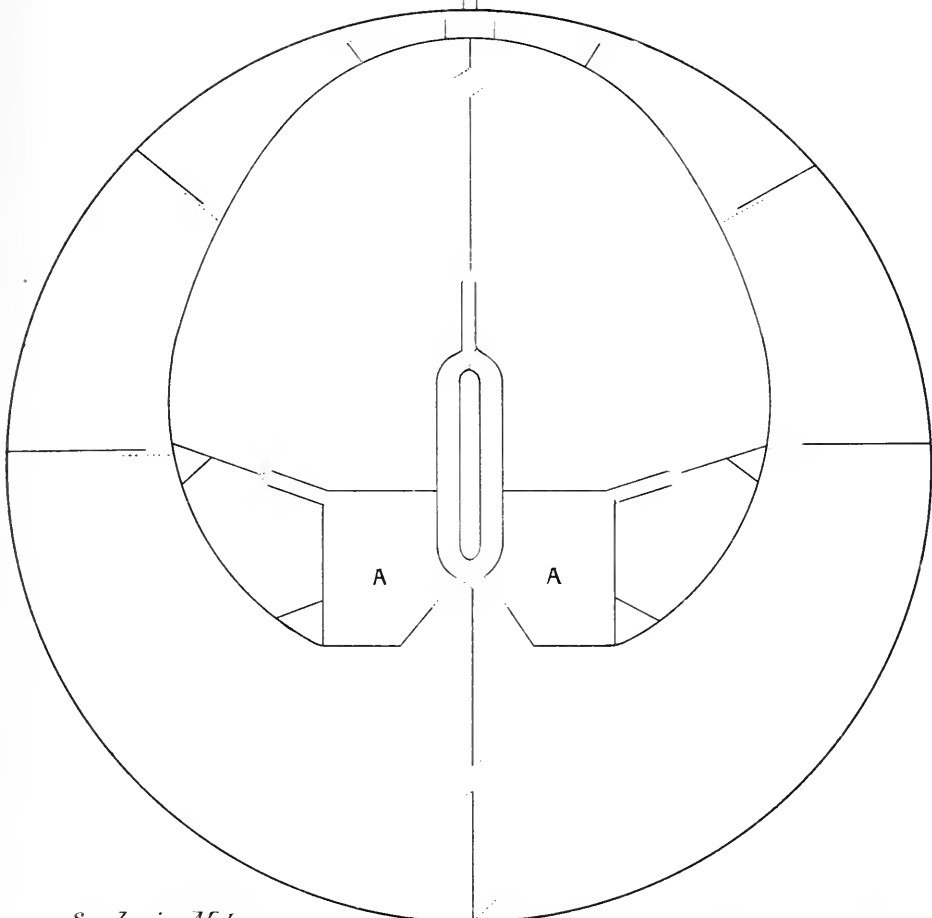
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TWIN YARD
FOR
DIPPING, CULLING, DRAFTING, Etc

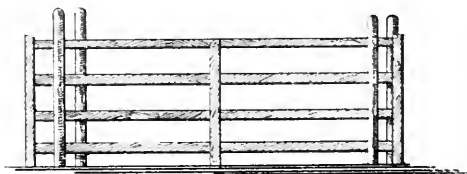
DIPPING BATH

A. A. WORKING PENS.

WIDTH OF RACES 65 CENTIM



Scale in Metres
1 : 500



RUNNING GATE
1 : 50



avoid acute angles. Sheep are easiest penned where the succession of enclosures are rotary. Sheep run readily up an ascent, but are loth to descend; therefore place the pens on an elevation. Sheep in a circumscribed space are not easily driven; they more willingly run in the direction whence the person, who desires to drive them, comes. Therefore in circular yards don't get behind your sheep; start from the pen wherein you desire to enclose them, and walk towards them. *Gates*: These should not be tied, or open as one opens an ordinary gate. They should run between upright posts so as not to be in the way either on one side of the pen or the other. They are more rapidly opened and closed when so arranged. Parting gates for races should swing easily on hinges.

The centre oval is for working a flock when it is not necessary to throw down the animals. The overseer is in the central division, which is only 2 ft. 6 inches wide, and can walk from one extremity to the other. Upon one side the animals are being run out and drafted and the race refilled, while on the other the overseer is inspecting the sheep. This construction is very convenient when wethers are being separated, ages sorted, and similar operations practised.

Lambing.—One month at least before the first lamb is due, the flocks should all be as tranquil as possible. By this time the scab and any other contagious disease should be stamped out if possible.

All sales should have been terminated, and the stock reduced to its winter capital. Everything depends upon the tranquillity of the flocks during the lambing season, and the shepherd should be ever with them. The great mortality in lambs in the Argentine every year is in considerable part due to the negligence of the breeder and his shepherds; and from 6 to 10 per cent of the annual increase is lost from a lack of the most commonplace care. The good results of timely dipping for the scab are apparent now, for the shepherd may venture to leave his flock free from treatment for this disease during all or most of the winter. What a difference is evident between such a flock and one where the pastor has said to himself that there was plenty of time and the shearing was still far distant! Now, in the depth of winter, when the days are short and the weather frequently inclement, must the ragged sheep be brought to the muddy yard and there remain most of the day, whilst their wretched lambs, floundering weakly in the filthy mire, bleat piteously in vain lament for their mothers.

During the winter season the sheep-breeder finds time to attend to the upkeep of his establishment; the repair of the buildings and fences, ditching, attending to the tree plantations, and similar occupations. One month or six weeks after the lambing comes the operation of ear-marking, docking, and castration—all too simple and too frequently explained in standard works on sheep-breeding to deserve detailed description here.

And by this time it is necessary to start preparations for the next shearing, and the year's routine is complete.

Winter Fodder for Sheep.—It is the fate of flock-masters in this country to see their sheep enter the winter in good condition, and then gradually lose flesh and fall off until spring, when the early grasses begin to come away. Not only does nature reduce the store of food, but the days become shorter and the sheep have not time to gather the grass necessary for a perfect maintenance,—a difficulty not wholly obviated by the paddock system, as sheep will not willingly feed at night. The result of this shortened provision of pasture and reduced time for consuming it is naturally detrimental; the lamb-bearing ewe is ill-prepared for rearing her offspring, the hogget's development is thrown back, and the growth of wool in the whole flock is seriously retarded and injured. All that has been gained during the summer months is now lost. The weakly animals die off, and the capital of the sheep-breeder hibernates in the worst possible sense of the word.

Nature has, of course, provided for this seasonable languishment; but it behoves man, who has in the case of domesticated animals taken the responsibility from nature's shoulders as it were, and appointed periods for the breeding and the removal of the fleece, to fulfil his charges. He has rendered the sheep an almost artificial animal, and he must now

have recourse to artificial means for its nourishment.

In Scotland, where large flocks of sheep are maintained almost all the year round upon natural herbage, the shepherd has found it necessary to provide extra fodder in the winter time. He does this by either enclosing of the land belonging to the "hirsell" or run, or by cutting the hay upon the inaccessible bog and marsh land in the summer months, and stacking it. When the severity of winter reduces the natural forage, he doles out a ration of this hay, calculating the daily supply at from two to two and a half pounds per head; and by this means he brings his fleecy charges through the most trying season of the year.

In Australia, a practice somewhat similar exists. To provide against heavy droughts and scant winter forage, large stacks of natural hay have been made, which have done good service in untoward seasons. The suggestion, therefore, is based upon the example set by other sheep-rearing countries, and is not to be confounded with the breeding of sheep upon arable lands.

Sheep-breeding in the Argentine is carried on in such a wholesale manner that there is too much carelessness in looking after the pence; a writing-off of losses in aged ewes and young lambs as a natural and necessary discount; a treating of flocks in their thousands without a sufficient individual solicitude for the units which go to compose them. And this

magnificent disregard for detail becomes too soon a second nature in the foreigner. So, in treating of an innovation that certainly represents extra work and care, it is necessary to persuade the breeder of the magnitude of the gain thereby obtained. During the winter months a sheep requires considerably more food than at any other, for now a large quantity must go to support respiration and animal heat. With a judicious supply of extra forage, the mortality in the flocks—always heaviest in the winter season—would be reduced; the ewes would bring up stronger and earlier developed lambs; the general increase would be sensibly augmented; and finally the wool would be of an even and regular staple and would obtain a better price in the market. When these notable advantages are considered, the extra outlay and labour which their attainment entails certainly appear insignificant.

In sheep lands where there exist natural grasses capable of giving a fair quantity of hay if preserved, the most economical method for providing extra fodder for winter feeding would probably be in fencing off a small area, say 15 to 20 hectares, which is equal to from 37 to 50 acres, for every thousand head of sheep. The loss of this pasturage in the summer time would be unfelt by the flock, and the hay when ripe could be cut and stocked for future use. Stock could remain upon this reserve enclosure until August, when all animals must be removed; the natural grass would be ripe and ready for hay-making

by the last week in November, or first in December. A simple top-dressing could be obtained by using this very enclosure in the months of December and January for herding the ewes during the tugging season and thereby saving the rams. The cost of enclosing such an area would not exceed £50, and apart from its primary object it would be of use for many purposes during the autumn and winter months.

But presuming that the natural grasses of the country were not sufficient to make hay in a profitable quantity, then lucern can be employed for the same purpose. Calculating the production of lucern at 25,000 kilograms per hectare, equal to 21,700 lbs. per acre,—which is sufficiently modest,—and the daily consumption at one kilogram or two to two and a quarter pounds, then 5 hectares, or say $12\frac{1}{2}$ acres, would provide sufficient fodder to keep one thousand sheep in excellent condition through the months of May, June, July, and August.

There is other forage that could be employed to advantage, such as ensilage of all sorts, roots, cabbages, and pumpkins. And, of all these, that which most commends itself to my mind is the humble and neglected pumpkin, whose kindly nature, embracing the cold support of wire fences and careless tangled hedges, fills empty corners and bare spaces with its generous and pervading growth. I have seen a flock of 750 picked ewes practically brought through an untoward season upon pumpkin;

the whole area cultivated with the vegetable did not exceed three and a half acres. I have known a case in the Azul district where a shepherd saved his flock from ruinous mortality through having had the foresight to sow pumpkins. The sheep will eat them readily if broken up and scattered on the ground. There is some difficulty in preserving them, as, if left either in contact with the ground or with one another they rot rapidly. But if arranged upon tiers of horizontal railings, exposed to the air but not in contact with one another, they will last until the first week of October, the Angola sorts preserving longest. They are not harmful to ewes heavy in lamb, or after lambing.

I append a short table, collated from the works of Youatt and Burns, Pringle, and C. Scott, giving a rough analysis of some of the more common agents in mutton and wool growing. It will assist the sheep-breeder to form an estimate of the comparative advantages of the cultivation of each crop.

	Water.	Flesh and fat formers.	Woody Fibre.	Ash.
Maize	14·50	79	5	1·50
Turnip (av. of 5 sorts) .	90	6·50	2·50	1
Beets	76·50	17·50	5	2
Cabbage	92	6	...	2
Clover (av. of 4 sorts) .	80	13	5	2
Italian Rye Grass .	75·50	17·50	4·50	2·50
Cocksfoot	70	18·50	10	1·50
Lucern	73·50	19	4·50	3

Of the method for giving this winter fodder to the flocks little need be said. In the case of hay or lucern, the simplest plan is to erect a double line of wire netting, about two feet apart, supported by stakes as suggested by Mr. Charles Scott in *The Practice of Sheep Farming*:—"The sheep will eat the hay nicely through the meshes of the wire, which also prevents the hay from being trampled on, or blown away by the wind." But even if the hay be thrown upon the ground it is better than no hay at all. With respect to pumpkins, beets, turnips, or other roots, they can be either placed in troughs or laid upon the ground, a boy, armed with a cutting knife in the shape of a cattle brand, with deep-bladed knives in the shape of a cross at its extremity, can cut sufficient fodder for a thousand sheep in an afternoon. As it is necessary to practise the greatest economy in order that the extra feeding of sheep in winter time may be a practical success, the most primitive methods may be employed. Improvements will readily suggest themselves; and the details of the work will be determined by individual circumstances.

Labour.—Labour is cheap in the Argentine Republic, particularly so at the present time, when the general tightness in commerce has tended to reduce the wage tariff. Under such circumstances it might be considered that the country is a poor field for the immigrant, but such is not the case. Skilled labour is still highly paid, and living is very inex-

pensive. Moreover, in a country as yet but sparsely populated, and capable of very much more development, there occur opportunities for advancement not to be found in more thickly-peopled countries, where competition is keen and there are more applicants than posts to be filled. The working immigrant has, it is true, to content himself with a modest wage upon first arriving, but if he be diligent and apply himself to his work, his merits will soon find appreciation on the part of his employer. Treating, as this work does, exclusively of sheep-farming, it is only with reference to this industry that labour is here considered. As in all pastoral countries, the demand for hands is limited, though here as elsewhere trustworthy and intelligent men are much sought after and well paid. A wider field for the immigrant lies in the agricultural districts, and there is still room for many hundreds of thousands in the cornfields of Santa Fé, Entre Rios, Cordoba, etc.

A general labourer whose duty is to dig ditches, work in the wool-shed, and generally assist as a foot-workman at the head station, is paid from £2 to £3 per month. In addition to this he is found in both house-room and board. His food is cooked for him, and he usually gets one meal at mid-day, and another at sun-down, as well as a cup of tea, cold meat, or something similar before sun-up. Sometimes he gets bread and tea rations instead of being supplied with them in the common kitchen. These

consist of 3 lbs. of "camp" biscuit, 1 lb. sugar, and $2\frac{1}{2}$ oz. of tea, or, if he prefers it, 1 lb. of Paraguayan tea, per week.

The monthly wage of a shepherd is from £2 : 10s. to £4, as well as a small sum of money for each lamb marked and tallied, bringing up his wage to perhaps 16s. more per month. He is found in meat and rations, as already described in a previous part of this chapter ; and as his expenses are small, he should be able to economise, and lay by some money every year. And at any rate he is provided with a comfortable home and plenty to eat.

A popular method of paying the shepherds is that of the profit-share system, and there is much to recommend it, particularly in those far-distant runs, where the employer is more or less dependent upon the honesty of his flock-tenders. At a convenient period of the year, generally about March, the flock is handed over to the shepherd, counting it out ; and that count constitutes the shepherd's capital. He receives a house with kitchen, and enclosure for garden and tree-planting, a yard in which to work the flock, a well, trough, spade, wheelbarrow, and tubs in which to prepare the remedy for curing the scab. He finds his own horses, and is generally limited as to the number of these by his employer, who probably establishes the maximum at twelve horses and one mare. He is allowed to kill out of his own flock to provide himself and his family with mutton ; sometimes he is provided with meat from

the head station, in which case he pays the value of this meat, which is generally placed at a low rate. If the flock be one of average size, say a capital of 1200, he receives it on a fourth share. He neither pays for any part of this flock, nor does he find any capital other than his labour. The flock of 1200 is therefore entirely the property of the employer. During the year the debits corresponding to the shepherd are as follows :—

One-fourth of all curing stuffs, cost of dipping for scab, and similar offices performed for his flock.

One-fourth of the expenses of shearing, and all other labour connected with his flock which has entailed the employment of other hands than himself.

He is credited with the following :—

One-fourth of the value of all skins from his flock, delivered by him to the head station.

One-fourth of the value of any tallow removed from dead sheep, and delivered by him to the head station.

One-fourth of the value of all the wool got from his flock, less expenses connected with sale of same.

One-fourth of the value of all sales effected from the flock, during the period of his contract.

One-fourth of all increase found in the flock, deducting the original capital from the amount counted out at the date of the expiry of his contract.

The employer reserves to himself the right of determining the value of the wool and sheepskins, according to the condition of the cleanliness, etc., in which the produce is received. It is not customary to pay the shepherd one-fourth of the actual price

obtained for sales from his flock; for he may be tending a special class of animal which obtains a very high price in the market, not thanks to his care, but to the natural valuable qualities of the breed. It is customary in such cases to look upon all sales as *increase*, and pay the fourth share of them at a fixed rate, say from 5s. to 6s. per head, without discriminating, so far as the shepherd is concerned, in the nature of the sale. Thus the entries in the stock-book would be as follows:—

1891. Dec. 8. Sold from this flock, <i>wethers</i> . . .	160	
1892. Jan. 17. " " <i>culled ewes</i> . . .	130	
" Feb. 16. Removed " <i>de-graded stock</i> . . .	140	
" Mar. 31. Counted flock at this date, being expiry of contract, and found . . .	1290	
		————— 1720
Less capital as delivered on 31st March 1891	1200	—————
		Increase during past year . . . 520

And the shepherd would be credited in his account with the fourth part of 520, say 130 at 5s. 6d. each.

The shepherd, when on a profit-share, is expected to look after his flock during the whole year without any assistance from his employer, other than at the times of shearing, dipping for scab, and removal of drafts for sale. He agrees not to keep more than one dog; to plant ten trees every year; not to sow vegetables for sale, though he may grow as many as he pleases for his own consumption; and to keep the house, enclosure, and yard in good repair.

On the other hand he is permitted to keep a pig or two, chickens, turkeys, and other domestic fowls, and his wife may make a little house-money in this way so long as the charge of such possessions does not interfere with the shepherd's attention to his duties. He is also sometimes invited to assist at other work, such as the shearing at the head station, the digging of wells, construction of fences, and such like ; and for this work he receives extra pay. In this manner an industrious shepherd may expect to have, in a good year, £30 or £40 over and above his annual expenses, though not unfrequently the poor fellow has a "bad year," and the return of his share of the flock is barely sufficient to pay for the necessaries he has had to buy during the year. Of course, in the profit-share system the shepherd has to provide himself with everything, except mutton, entirely at his own cost.

Many consider this profit-share system as too primitive, too patriarchal, for these go-ahead days ; but it is open to question if the additional money paid to the shepherd does not bring with it a more than proportionate increase for the employer's pocket. Indeed, the writer of this is of opinion that wherever it is possible to do so, the labourer should be encouraged by receiving some small profit share. The discreet unmuzzling of the ox brings more corn to the granary. The shepherd's application and interest in his work are increased, and his employer's affairs are better and more faithfully cared for ; and

it gives the working man a better chance of improving his lot. The shepherd who knows that every growing fleece of wool contains locks which shall be his, and that every lamb suckled and weaned bears a few more pence for his store, will watch and tend his charges with a concern scarcely to be expected of him were the fleece and lambs alike the sole possessions of his master. But these considerations of economical convenience, alike fruitful to master and man, which lead to a study of the moral unwritten law of duty towards our neighbour upon one common ground, carry us far beyond the limits of the present subject.

Share-holders.—In cases when a proprietor of a large area of outside land finds himself short of funds sufficient to stock the whole of his estate, it is not unusual to admit shepherds who bring with them a number of sheep of their own. In such cases the proprietor puts an equal quantity of sheep against those belonging to the shepherd, and the latter tends the flock upon a half share. Or the owner of the land finds double the quantity of that brought by the shepherd, and the latter receives one-third of the profits. When the shepherd is thus actually owner of a portion of the flock, he has more say in the matter of the sale of wool and other produce, though he generally leaves the disposal of the fruits to his employer. At the end of his contract he can also remove his share of the flock and of the increase, and is not obliged to sell to the *estanciero* or landowner.

This system of co-partnery is useful to the landowner whose capital is too limited to stock up the land entirely at his own expense, and he frequently ends in buying the shepherd's share from him. The owner finds the land and a portion of the flock; the shepherd the remainder and the labour. Each pays his proportionate share of the expenses, and receives his corresponding share of the profits.

Day Labour. — In special seasons, such as shearing, dipping for scab, etc., the day labourer is paid from 3s. to 4s. per diem, including the mid-day meal, and sometimes both mid-day and evening meal and lodging. Specially hard work, such as the digging of wells, is paid at a higher rate, say from 5s. to 6s. per diem. When such work can be paid for by the piece, it is generally preferable to do so.

Steading.—The head station of a sheep farm, to be complete, should have at least the following buildings, plant, and enclosures:—

1. A dwelling-house for the owner or manager.
2. A dwelling-house with kitchen and accommodation for the regular steading hands.
3. A big shed wherein to store wool and other produce, agricultural machinery, timber, and general stuff.
4. A shearing-shed, which can be used at other times for housing fine stock, storing implements, hay, etc.
5. A building with storeroom, butcher's shop or meat house, tallow room and carpenter's shop. These can be built separately, but are best united in one edifice.
6. A complete dipping plant for the cure of scab, with yards sufficient to work at least one entire flock at a time.

7. Wells and efficient water supply.

8. A large garden, sufficient to keep the steading in vegetables throughout the year.

9. An enclosure for tree planting in order to provide the steading with firewood. Tree planting should be carried on wherever it is practical, and no branch of farming is so satisfactory and remunerative.

10. At least ten acres of lucern, to keep the steading supplied with hay during the winter.

11. A yard or "corral" for catching horses, and a larger one for working cattle.

Fairs.—In addition to the other means the breeder has for purchasing tups and other stock, or for selling them, there exist in the Province of Buenos Aires bi-annual fairs to which all the best breeders send animals. Ten years ago such fairs were unknown in most districts, and the two or three held were but poorly attended. To-day, at many towns, such as Mercedes, San Nicolas, Bragado, Chascomus, Salado, Azul, Olavarria, Tandil, Balcarce, Ayacucho, Dolores, Las Flores, and Bahia Blanca, these spring and autumn meetings have become the most important events of the year; and their institution is of undeniable benefit. The seller finds a market for his stock, and if not successful he can at any rate satisfy himself of the defects in his breed, or cause of their hanging on his hands. The buyer will here see the produce of all the principal breeders, and be able to compare one class with another, and not only acquire much information but also obtain what he wants at the proper market price. The railway companies charge reduced rates for stock going to and coming

from these fairs. Here too the breeders can meet and discuss the pastoral questions of the day to their mutual benefit. Great credit is due to the indefatigable labours of the first promoters of these local rural societies and fairs, and there is no question that they have supplied a need long felt by breeders in the Argentine.

Little more need be added to this chapter upon the general administration of a sheep farm. The whole secret of success lies in the practice of economy and the daily attention to the stock. A great exercise of intelligence or science is not required, but a constant watchfulness is the best guarantee of favourable results. Each district has its own specialities and particular conditions; it is impossible to detail all of them. The studious breeder will soon assimilate all that is needful, and learn to adapt himself to his circumstances.

CHAPTER IV

PRICES, VALUES, TAXATION, AND RURAL LAWS

THE market value of land in the Argentine has gone through so many fluctuations, that quotations of to-day's value will not remain reliable for long. Land of a good class, situated in the Province of Buenos Aires and conveniently near a railway, changed hands at about 12s. an acre in 1882, 30s. in 1886, 45s. in 1889, and by the end of 1891 could not find buyers at 15s. an acre. An element of speculation during the years 1888-1890 had upset the base upon which land sales should be conducted, viz. that of the productive capacity of the estate; exaggerated sums were paid with the proposition of reselling the property at a still more inflated figure. Sheep farms exchanged hands at a price which, given the conditions of the land and the existing state of the pastoral industry, represented working them at a dead loss. Even practical breeders, who knew to a nicety the carrying capacity of their run, and what revenue the stock could bring them in, allowed themselves to be carried away with the stream of enthusiasm, and imagined themselves to be possessed of veritable El Dorados.

This period of speculation has been followed by one of crisis, and land had fallen far below its proper value by the end of 1891. No fall in the value of produce, or diminution of its quantity, or discovery that the pastoral properties of the land had been over-rated, occasioned this depreciation. Panic had taken hold of all; and if many perceived the profit to be gained by buying in at bottom prices, they had neither capital nor credit wherewith to effect the purchase. Land may be expected to slowly rise again in value; but it must do so by reason of the introduction of capital, improvement in stock, elaboration of the breeding system, drainage, and similar outlay. With these will come an increased revenue to justify a higher valuation of property. The writer has thought it advisable to make these prefatory remarks in this chapter on prices, to guard the reader from presuming that the figures hereafter mentioned are likely to remain unaltered for many years.

Price of Land.—Mr. Mulhall, in his chapter on Lands in the *Handbook of the River Plate*, gives some figures and remarks which I take the liberty of quoting here.

“Most of the lands within 100 miles of the city of Buenos Aires (besides large areas in Santa Fé and Entre Rios) are now given up to tillage, in small farms, which greatly enhance their value. The following scale shows the value approximately with reference to distance :—

Miles from Buenos Aires.	Value \$ gold per sq. league. ¹	Shillings per acre.
Under 100	160,000	100
100 to 200	100,000	60
200 ,, 400	30,000	20
Over 400	15,000	10

In a previous part of the same chapter it is said that—"The official statement for 1886 (to which is appended a scale of present values) shows as follows :

	\$ gold.	Ordinary price (in 1892) per sq. league.
Buenos Aires . . .	351,000,000	\$30,000 to \$60,000
Santa Fé . . .	44,500,000	20,000 ,, 40,000
Entre Rios . . .	90,200,000	20,000 ,, 40,000.
Cordoba . . .	45,200,000	5,000 ,, 10,000

These tables are at considerable variance, and the valuations in the first one are, in the author's opinion, overestimated. Taking the Province of Buenos Aires, and basing our calculations upon the approximate area of each of the four classifications in the first table, and the value per acre therein stated, we have the following table :—

¹ Tables of weights, measurements, etc., will be found at the end of this chapter.

Miles from Buenos Aires.	Area in sq. miles.	Mr. Mulhall's valuation.		Amounts.
		Acre.	Sq. mile.	
Under 100	16,000	£5	= £3200	£51,200,000
100 to 200	38,000	3	= 1920	72,960,000
200 „ 400	60,000	1	= 640	38,400,000
Over 400	6,000	$\frac{1}{2}$	= 320	1,920,000
Province of Buenos Aires	120,000			£164,480,000

This gives us the valuation of the total area of the Province of Buenos Aires equal to \$822,000,000, as compared to the 1886 official statement in the second table, which places it at \$351,000,000. It also makes the average square league in the Province of Buenos Aires worth over \$70,000, as compared to an average \$45,000 as stated in the second table. But, if we follow the course of the 200 mile radius and that of the 400 mile radius through other Provinces, we find still further reason to hold Mr. Mulhall's acre valuation an extreme one. The 400 mile line runs through the town of General Acha, capital of the National Territory of the Central Pampa, and encloses land which is being sold to-day at anything from 2s. 6d. to 5s. an acre. It touches the Province of San Luis, and encloses nearly three-quarters of the Province of Cordoba within the 20s. per acre valuation. In Santa Fé it ascends north of the 29th parallel of latitude, thereby fictitiously enhancing the already exaggerated value of the northern Santa Fé lands. Finally, it encloses within its pale

nearly one-half of the Province of Corrientes. Accepting Mr. Mulhall's acre valuation of land within the three radii he establishes as standards, we have the Province of Entre Rios, of which 3500 square miles are under 100 miles from the city of Buenos Aires, 14,500 square miles from 100 to 200 miles from that city, and 14,500 square miles from 200 to 400 miles, valued at a total of £47,848,000, or say \$239,240,000 gold, a sum more than three times as much as the official valuation for 1891, which is stated in the *Handbook* to be \$70,000,000. Finally, taking all the Provinces included in the first three acre valuations, we arrive at an appreciation of the value of Argentine lands sufficient to entitle us to consider the Argentine foreign debt a matter of small moment. The following is the table, based upon Mr. Mulhall's acre valuation :—

Miles from Buenos Aires.	Province.	Area in sq. miles.	Mr. Mulhall's valuation.		Amounts.
			Acre.	Sq. mile.	
Under 100	Entre Rios . .	3,500	£5 =	£3200	£11,200,000
100 to 200	Santa Fé . . .	5,400	3 =	1920	10,368,000
"	Entre Rios . .	14,500	" =	"	27,840,000
200 to 400	Pampa Central	23,000	1 =	640	14,720,000
"	San Luis . . .	2,500	" =	"	1,600,000
"	Cordoba . . .	48,100	" =	"	30,784,000
"	Santa Fé . . .	35,000	" =	"	22,400,000
"	Corrientes . .	14,000	" =	"	8,960,000
"	Entre Rios . .	14,500	" =	"	9,280,000
		160,500			£137,152,000
	Province of Buenos Aires	120,000			164,480,000
		280,500	sq. miles at		£301,632,000

This total area, which excludes nearly a million square miles of Argentine territory in which may be mentioned the vine lands of Mendoza and the sugar lands of Tucuman, is thus valued at nearly two and a half times the official valuation of Argentine land, which is stated in 1892 to be 646,000,000 dollars.

It would be an ungenerous misinterpretation of Mr. Mulhall's acre valuation to signalise lands here and there and show how far their actual value falls short of that attributable to them if their relative distance from the city of Buenos Aires established their price. But I have thought it necessary to treat the valuations contained in the *Handbook of the River Plate* in some detail, both because that work is one whose general excellence entitles it to be frequently consulted by those interested in the Argentine, and also to justify the bases of valuation of land which I myself establish in the subsequent pages.

Speaking exclusively of lands adapted for pastoral purposes, and dealing with them at their purchasing cost of to-day, the following may be accepted as reliable :—

1. Land of first-class quality, capable of carrying the equivalent¹ of $2\frac{1}{2}$ sheep to the acre, situated in

¹ In order to establish the carrying or grazing capacity of land, the author has reduced every class of live stock to the standard of sheep, and in the following proportions :—One cow is calculated equal to five sheep, and one horse equal to seven sheep. The number per acre is supposed to be the mean between the winter count of stock before lambing, calving, and foaling, and the summer count before the increase has been removed from the land.

the Province of Buenos Aires not more than 200 miles from the capital, with existing plant including a good stading and wire fences. An area not less than 3000 acres. *Market value, from 30 to 50 shillings per acre.*

2. Land of second-class quality, capable of carrying the equivalent of $1\frac{1}{2}$ to 2 sheep to the acre, situated in the Provinces of Buenos Aires, Santa Fé, and Entre Rios, within convenient distance of railway communication, and with plant including a good stading, wire fences, etc. An area not less than 6000 acres. *Market value, from 20 to 35 shillings per acre.*

3. Land of third-class quality, capable of carrying the equivalent of 1 to $1\frac{1}{2}$ sheep to the acre, situated in the Provinces of Buenos Aires, Santa Fé, and Entre Rios, within a fair distance of railway communication and possessing a stading and probably some paddocks, or a ring fence. An area not less than 6000 acres. *Market value, from 12 to 25 shillings per acre.*

4. Land in the Provinces of Buenos Aires, Santa Fé, Entre Rios, and Cordoba, at a fair distance from railway communication, capable of carrying the

It is of course understood that *no* land can be entirely stocked with sheep without also carrying some cattle and horses. The farther outside the buyer goes, the more cattle land he will find, though after some years of stocking this land it becomes excellent sheep country. But in order to judge all lands by one common standard, that of sheep has been adopted everywhere in this book. Thus, say an estate of 10,000 acres carries the following stock:—10,000 sheep, 1700 cattle, and 200 horses. Estimating 1 cow = 5 sheep, and 1 horse = 7 sheep, the estate may be said to carry the equivalent of 19,900 sheep, or say 2 sheep to the acre.

equivalent of 1 sheep to the acre, with good soil capable of improvement and the introduction of better herbage, a steading and possibly some fencing and other plant. An area not less than 6000 acres. *Market value, from 10 to 15 shillings per acre.*

5. Land in the Provinces of Santa Fé, Entre Rios, Cordoba, Pampa Central, etc., at some distance (50 to 150 miles) from a railway station, capable of carrying the equivalent of $\frac{1}{2}$ to 1 sheep per acre, with the prospect of a vast improvement in the herbage, possibly with a steading, but not much plant to be expected. An area not less than 12,000 acres. *Market value, from 4 to 8 shillings per acre.*

6. Outside lands in the far south and west, in the Provinces of Rio Negro, Neuquén, Santa Cruz, National Territories, etc.; at present very little stocked. Areas not less than 30,000 acres. *Market value, from 1 to 4 shillings per acre.*

Title-Deeds.—Title-deeds for land purchased of a previous owner are good for all time, and secure the land in freehold to the buyer without *gravamen* of any description, unless the previous holder has mortgaged or otherwise encumbered his estate. The buyer should submit the title-deeds to some lawyer of position, who will revise the documents and inform the intending purchaser if they are in order and free of flaws. Being satisfied upon this point, the deed of sale can be drawn up by a notary

public and signed by both parties. All expenses connected with this documentary transaction are payable by the buyer. After purchase the buyer can have the land remeasured for his own satisfaction by a duly sworn land-measurer, who conducts the formal appeal for permission, invitation to the neighbours to attend the measurement, and other official matters. If the area of land be found to exceed that bought by the purchaser, the excess may be bought from the Provincial Government at two-thirds of the price of the general valuation set upon the estate for taxation purposes. Care should be taken to *denunciar*, that is to declare to the Land Office the existence of such an excess, and solicit first right to purchase the same. After a sale of land has been effected, the Land Department must be duly notified for the registration of the property. This, and all other matters relating to the formalities necessary to such a transaction, are attended to by the lawyer employed to conduct the business. It is only needful to add, with reference to this subject, that the sale or purchase of land is not a troublesome negotiation provided the buyer employs an agent of respectable position. The fees he pays are modest ones, and if placed in the hands of a competent legal adviser there is little danger of making an invalid purchase.

Rental.—Land is frequently obtained in rental for a period of three years and upwards. This form of stock-breeding does not particularly commend itself

to the immigrating colonist, who may find himself at the expiry of the lease overburdened with stock and without prospect of a renewal. It is more a business for capable breeders who see an opportunity for finding land for their increase, at a time when prices make it inconvenient to sell off the surplus stock. It is also much practised by small stock-breeders, the owners of say a flock of sheep which they have acquired through working as shepherds on a profit-share system, or gathered together during several years of economy. These people rent a run sufficient for say 1200 to 1500 sheep, the area of such a run being from 600 to 900 acres. The rental they pay varies from 1s. 6d. to 2s. 6d. per acre, and by dint of careful economy they frequently make a handsome profit out of their flock. The general price of rent may be taken at from 6 to 8 per cent upon the stated value of the land.

The Purchase of Sheep.—In a previous chapter the various classes of sheep have been discussed. It rests for the breeder who is about to stock-up his land to determine what class of sheep is best adapted to the climate, position, and pastures of his land. Having satisfied himself upon this point, he can then proceed to buy sheep for his run. The most favourable season for effecting a purchase is from November until February, for the following reasons:—

1. The shearing, which takes place in October and November, is now concluded, and the seller is desirous to dispose of his surplus stock as soon as

possible, and will sell at lowest prices to ensure an early removal.

2. The stock is in its most healthy condition, having been relieved of the heavy fleece, and enjoying the most seasonable period of the year.

3. The roads are in their best state for the driving of the sheep.

4. The ewes are not yet in lamb, the lambing season being due at earliest, and in the case of merinos only, at the end of March. The previous season's lambs are now weaned and can travel.

5. The stock will arrive at its new home during the best time of the year, and so get accustomed to the run before the autumn sets in and lambing commences.

6. This season is the one best suited for organisation, getting the curing of the scab well in hand, arranging the flocks, and so on.

The intending purchaser should now inform himself, in every way within his power, of stock for sale. He will get this information through stock-agents and brokers, newspapers, and many other sources. He can travel from place to place inspecting the sheep, getting quotations of prices, until he has satisfied himself and found something convenient to his pocket and his run. And he should always have in mind that stock brought from good land to inferior land must suffer and deteriorate. That the reverse will happen when the sheep are taken from bad land to good. He should study the nature of the land

upon which the stock for sale is grazed, and compare it with his own.

Prices vary a good deal according to the demand for stock. At the present time merino sheep are at a discount, and good animals of that breed can be obtained at from 4s. to 8s. per head, "by the cut." This expression, which embodies the usual form of sale in the Argentine, deserves an explanation. A flock of sheep of ordinary class may be said to be composed of the following ages and sexes :—

52 per cent	:	breeding ewes, 20 months old and upwards to 5 years.
30	„	: 8 months old lambs, mixed sexes.
14	„	: wethers of 20 months and upwards.
8	„	: aged ewes and crocks.

The owner, having agreed to sell a portion of such a flock, causes the whole number to be rounded up in the yard and kept moving for some time in order to mix all sorts and conditions as much as possible. The purchaser, followed by his men, then cuts off a portion of the flock, calculating with the assistance of the seller the approximate number; and drives them into another yard. Hence the exact number to be bought is counted out. This method of sale is now conducted upon more punctilious lines, but the expression "by the cut" is derived from it, and is used to denote a number of stock of different ages and sexes.

Inferior merino sheep are to be bought at lower prices than these quoted; indeed, if the buyer chooses

to take very inferior stock, he can buy at 1s. 6d. per head. But I need hardly say that no economy can be falser than that of buying inferior animals because their price is low. Quality should always be more regarded than quantity. The inferior animal consumes the same amount of fodder, and requires the same amount of attention, as the better-bred beast.

Long-wool crosses are to be had at from 6s. up to 12s. per head, "by the cut." Ordinary good stock, for growing cross wool and breeding saleable wethers, is to be had at the lower price quoted.

The seller generally allows to the buyer the right of discarding the lame and sickly animals; or he allows a percentage of 5 per cent for that purpose.

The stock is delivered by the seller to the buyer on the former's run, and at the gate of the sheep-yard. All risks, expenses, and losses on the road to the buyer's property correspond to the purchaser.

As the buyer will probably wish to infuse new blood into the stock he has purchased, it behoves him to buy rams for the flocks he has acquired. The proportion of rams to sheep "by the cut," should be 1 to 60; though many put only 1 to 80, or 1 to 100. Nevertheless the breeder will not lose by buying a sufficient quantity of rams. These he can acquire by visiting the breeding farms in his vicinity, and making his selection; or by attending the district fairs,—held twice a year,—where he will frequently find good animals for sale at low prices. Generally speaking,

a first-class Rambouillet tup can be obtained at from £2:10s. up to £5, and a first-class Lincoln at from £3:10s. up to £7.

If the breeder determines to produce tups for his own flocks, he may select a small number of sheep of the best type from the general stock he has bought. For these he will require a special tup or two; these he can obtain at about £10 each, treating of Lincolns, and at from £10 up to £30, treating of Rambouillets or Negrettis.

He may also buy a special lot of ewes to form a stud, though he will find considerable difficulty in persuading any breeder to part with his best stock. For these he will have to pay a fancy price, which is quite impossible to reduce to a general table of prices. Indeed I can scarcely recommend any beginner to establish a stud by this means. It is better to do so by carefully selecting a few of the best ewes from the large number of general animals he possesses, and exercising the greatest care in the selection of tups.

The Sale of Sheep.—Duly established, with his run stocked up and in working order, the sheep-breeder may now reasonably expect to have a certain number of animals for sale at the end of the year.

The most simple way of disposing of these would be to sell them as he bought them, "by the cut"; and, if he has not allowed the breed to deteriorate he may expect the price he obtains to be equal to that he paid.

But this is not a progressive method of disposing of the increase, for it leaves the stock each year un-

improved in class, and gives no room to better its wool and mutton-producing conditions. The breeder should rather look to selling off that portion of his stock least profitable to him, and so raise the standard and value of what he retains.

In the first place he must inevitably have a certain number of wethers to dispose of. These he can best sell to the mutton freezer, either in a wholesale manner by inviting one of the freezing-house's buyers to come and inspect, and make an offer; or by remitting them in small quantities to the sale yards near Buenos Aires, and there disposing of them; or by contracting with a freezing-house to send them in small consignments and receiving payment at so much per pound of dead mutton. When practicable this latter form of sale is the most convenient. The breeder can also sell for live exportation, or himself export them for sale in Europe. All these methods are employed, and the prices depend upon the condition of the wethers, their breed and size of carcass, and the special intelligence of the breeder in making his selection for the market. The following prices give the value of wethers at the present time:—

Merino wethers giving, without head and trotters, a dead			
weight of 55 lbs. and upwards . 10s.			
Do.	do.	do.	from 45 to 55 lbs. . 6s.6d. to 9s.
Do.	do.	do.	less than 45 lbs. . 5s. to 6s.6d.
Longwool	do.	do.	from 55 to 70 lbs. . 10s. to 14s.
Do.	do.	do.	above 70 lbs. . 10s.
Do.	do.	do.	from 45 to 55 lbs. . 7s. to 9s.
Do.	do.	do.	less than 45 lbs. . 5s. to 6s.

The above prices include the skin, which is bought in with the carcase. As much as 20s. has been paid for wethers for live exportation, but the demand for these is as limited as the production, and the trade is one not sufficiently developed or assured to deserve notice as a reliable market for stock. On the other hand, not only does the freezing industry grow apace, as shall be seen in another part of this book, but there now exist establishments for the elaboration of the mutton of underweighted and inferior carcasses.

The satisfactory disposal of the wethers still leaves us, however, with a large proportion of increase to sell. The next step of the breeder should be to revise his stock, and cull the aged and inferior ewes, while they are still in fair flesh, and sell them to the butcher. This matter has been treated in the previous chapter, and as here I am only dealing with prices, I will quote 5s. to 9s. as the price for these culls, according to their condition of fatness.

But the breeder must not treat his flocks with too heavy a hand in the drafting of these inferior ewes, or the next year's increase will suffer for it. So, after he has sold a number of the aged ewes and crocks, he may still find it necessary to further reduce his stock. Here again he should avoid selling "by the cut," and thereby letting the good go with the bad at an all-round price. He should rather select a mixed lot of his most inferior animals, up to the total number he desires to dispose of in order to reduce the stock on his run to a convenient number. This mixed lot he

can offer in sale to some other sheep-breeder. Given the purchase prices already quoted, he may expect to get from 4s. to 6s. for this inferior "cut." But, though the average price obtained for his sale of surplus stock be, if anything, less than the general price he paid for the sheep when he purchased them, he is raising the value of his capital,—which is the correct, indeed the only system the sheep-breeder should observe.

Value of Produce.—The produce derived from a sheep-farm is three-fold: wool, skins, and tallow. Of these the most important, indeed that which represents fully 60 per cent of the gross annual overturn of the year, is the wool-clip; and the success of the breeder is almost entirely dependent upon the quality of the fleece and the state of the market. The special conditions of this, and the means in the hands of every breeder to improve his annual wool return, have been treated to some extent in a previous chapter. At present I have only to deal with the value of the article.

For some years past there has been a healthy demand for cross wools, viz., those which in a great degree combine the fineness of the merino with the length of staple of the long wool. Such wools wash out from 45 to 55 per cent, that is to say, after all impurities including the natural grease of the wool have been washed out and scoured from the fleece, 45 to 55 per cent of the original weight remains. But in treating of wool, I refer throughout this book to its gross weight

upon being removed from the sheep, and its value in that condition, before it has either been washed or otherwise treated.

Cross wools such as these described realised from 8d. to 8½d. per lb. gross price in the European market last year. Deducting the expenses of freight, insurance, and other costs from this price, the value of cross wools in Buenos Aires in 1891-1892 may be said to be 15½d. per kilogramme of 2·19 English lbs. From this price there is to be deducted the belly wool and small pieces and skirtings detached from the fleece, whose total weight might be computed at 7 per cent of the total weight of the sheep's fleece, and whose value may be taken at 30 per cent of that obtained for the fleece of mother wool.

There is also the lambs' wool, which is generally removed at the same time or a little later than that of the sheep, though the lamb is only six months old if a merino, and three months old if a cross or long-wool. The belly wool is not separated from the fleece in the case of the lambs, and the whole of this tender produce realises from 70 per cent to 80 per cent of that obtained for the mother fleece, say from 5½d. to 6½d. per lb.

We have thus three principal divisions of the wool-clip, which may be tabulated as follows:—

CROSS WOOL.

Fleece, <i>i.e.</i> Mother Wool .	81 %	of total clip, and worth	7½d.	per lb.
Bellies and pieces . . .	7 %	”	”	2½d. ”
Lambs' Wool . . .	12 %	”	”	6½d. ”

The fleeces may again be divided into three classes, —first, second, and third quality, according to their staple. And frequently two other classes are formed of the inferior, cotted, discoloured, or otherwise deteriorated fleeces. This practice only obtains with those who export their wools for sale in the European markets; but it would be of unquestionable advantage to both breeder and merchant to make this separation of the various classes of wool more prolix than it is at present.

Having described the classifications of the wool-clip, I need not allude to them in dealing of the produce of different breeds of sheep, as the same remarks apply equally to every case. The following table of Buenos Aires market prices is based upon the quotations for the season 1891-1892 :—

Class of Wool.		Fleece Wool per lb.	Belly Wool per lb.	Lambs' Wool per lb.
Merino,	yielding 32-38 %	5½d.	1¾d.	4½d.
Do.	„ 38-42 %	7d.	2¼d.	6d.
Cross Wool,	„ 40-50 %	7d.	2¼d.	6d.
Do.	„ 50-60 %	7¾d.	2½d.	6½d.
Long Wool,	„ 40-55 %	6½d.	2d.	6d.
Do.	„ 55% upwards	7¼d.	2¼d.	6½d.

There is also another method of disposing of the wool, viz., by selling it from the farm shed to a middleman or travelling merchant. But as this merchant himself sells his purchased wools in the city

market, it is palpable that any profit he may make comes out of the pocket of the wool-grower. There are, therefore, only two proper outlets for the produce, viz., by sale in the large wool markets of Buenos Aires, or by exportation for sale in European centres.

Skins.—Many breeders overlook this item of produce as of little importance, and take small trouble to prepare their sheep-skins carefully and obtain top prices. But holding in mind that by deaths from natural causes, and home consumption of mutton, there is an average annual turn-over in skins varying from 12 up to 20 per cent of the total number of stock upon the farm, the better sale of this produce assumes an important position in the farm revenue. Prices vary according to condition and length of wool on the pelt, and very greatly also according to the drying and preparation of said pelt.

First-class skins from butchered stock, with a half growth of wool and upwards, realise from 6½d. to 7½d. per lb.; the same skins carelessly dried and prepared are worth from 5d. to 6d. per lb.

First-class full-sized skins from dead stock, with a half growth of wool and upwards, realise from 5½d. to 6½d. per lb.; the same skins carelessly prepared are worth from 3½d. to 4½d. per lb.

Small skins from hoggets, etc., short to half woolled, carefully prepared, realise from 4d. to 5d. per lb.; the same skins carelessly prepared are worth from 2¼d. to 3½d. per lb.

Tallow.—This article has fallen greatly in value in the past few years, and there is no immediate prospect of an improvement in ruling prices. It has moreover ceased to be a produce of any great import with sheep-breeders, the days of boiling down having long since passed by. But at certain seasons, more especially during the lambing time, when many fat ewes die, there is a supply of tallow, and it is well to prepare it carefully for the market, frying it in a large caldron, straining it through one or two cooling tanks, and working it up into pipes. Tallow so prepared will realise $2\frac{1}{2}$ d. per lb. In its natural state, carelessly dried, discoloured, and pounded into an old barrel, with dust, dirt, and other impurities, as is too frequently the case, it is worth little more than 1d. per lb.

BUILDING, CONSTRUCTION, AND FENCING.

To the prospective colonist it is of considerable importance to know what the cost of material is in the country he has selected for the investment of his capital. It may be of some assistance, therefore, to give a brief outline of the price of those articles most frequently employed in the construction of edifices and plant necessary to a sheep farm.

BUILDING.

Bricks.—These are generally contracted for to be made on the land where the construction is being

carried on, and as near the site of the building as possible. They are made of common black earth, and measure when burned $12'' \times 6'' \times 2\frac{1}{2}''$. They are excellent for building a one- or two-storeyed house. The contract price for a quantity not less than 50,000 is from 10s. to 12s. per mil, and the employer accepts both classes of brick at this price. Class 1 is termed *ladrillo de cal*, or lime-brick, and is thoroughly burned, and useful for all sorts of construction. Class 2 is termed *ladrillo de pared*, or wall-brick, and is imperfectly burned, and chiefly employed for interior walls. A good brickmaker should turn out 65 per cent first-class bricks. The employer provides the brickmaker with water for the work, fuel for the kiln, meat, rice, salt, and Paraguayan tea. The maker finds his own men, and delivers the bricks at the kiln. One square yard of wall, one brick thick, contains 99 bricks.

Sand.—If not to be found on the farm, can generally be obtained for little more than the cost of freight.

Lime.—First-class, unslaked Cordoba lime costs 5s. per cwt. in the city of Buenos Aires.

Second-class, unslaked Azul lime costs 3s. 9d. per cwt. in the city of Buenos Aires.

Roman Cement, 2s. 2d. per cwt. in Buenos Aires.

Portland Cement, 2s. 3d. per cwt. in Buenos Aires.

Floor tiles, 96s. per thousand in Buenos Aires.

Roof tiles, 220s. do. do.

Corrugated Iron, 3s. 6d. per sq. yard in Buenos Aires.

White pine in boards, etc., 2d. per sq. foot of 1" thickness.

Spruce pine in boards, etc., 1½d. per sq. foot of 1" thickness.

Pitch pine in boards, etc., 2¼d. per sq. foot of 1" thickness.

Paraguayan cedar, for doors, windows, and frames, 1¾d. per sq. foot of 1" thickness.

Nails, French pointed, 1" to 6" in length, 7½d. per lb.

Labour.—The work of building can be contracted for at from 1s. to 1s. 4d. per sq. yard of wall, one brick thick; 1s. 4d. to 1s. 7d. per sq. yard of wall, 1½ bricks thick; 9d. to 10d. per sq. yard of interior wall, ½ brick thick. Master bricklayers and carpenters are paid from 5s. to 7s. per diem, including food; common labourers at from 3s. 6d. to 4s. 6d. per diem, including food.

WIRE-FENCING.

As this is most essential to the management of a well-conducted sheep farm, it will probably figure in the forecast of the intending colonist. The fence most frequently constructed is made of steel galvanised wire; hard-wood posts at from 16 to 24 yards apart; droppers of hard wood or T iron every 2 or 2½ yards; the wires, seven in number, and so spaced as to render the fence sheep and cattle proof.

Posts.—Of hard wood, *ñandubay* or *algarroba*, native timber, nearly indestructible, and measuring about 8 feet in length, by from 5 to 8 inches in diameter.

First Class, 3s. 6d. to 4s. each.

Second Class, 2s. to 3s. „

Third Class, 1s. 3d. to 2s. „

Galvanised Steel Wire.—No. 7 or 8, giving say 520 yards per roll. Cost per roll, 11s.

Hard-wood droppers, ready bored, 45s. per 100.

Common pine droppers, do. 25s. do.

Double T iron droppers, do. 30s. do.

Wire Stretchers, for tightening wire; double, 1s. 6d. each.

Labour.—Fences are always contracted for. Usual price, $1\frac{1}{4}$ d. to $1\frac{3}{4}$ d. per lineal yard, including meat but nothing more. Material to be delivered to the fence men on the line of fence. Contractor finds his own tools, men, tent accommodation, and provisions. He undertakes to set up the line of fence in perfect accordance with the land marks, and to deliver it in perfect condition to the employer.

With the above prices an intending colonist should be able to make a fair calculation of what his expenditure will be before his run is in that state of organisation necessary to a well-conducted establishment. It may, however, be of assistance to give in round sums the cost of most of the buildings and constructions usually connected with a sheep run. The following estimates are all taken from practical building experience of recent date. It is understood

that the colonist superintends the work himself to a certain extent, does not make unprovisional contracts and pay unnecessary margins to the contractor, and adapts his style of construction to the usage of the country, employing the material easiest obtainable.

DWELLING-HOUSE.

Constructed of brick and lime; walls plastered without and within with a good coating of cement; floors tiled; ceilings of lath and plaster, or of wood; roof of French tiles, or of corrugated iron painted and wood-lined; windows and doors of cedar, glazed and painted. A house of say eight rooms including kitchen, in perfect order for habitation, but unfurnished. Three rooms to be not less than 320 sq. feet inside measurement; five rooms to be not less than 220 sq. feet inside measurement. Verandah in front 8 feet wide, with hard-wood pillars, wood-lined roof and tiled floor. *Total cost of edifice, from £600 to £800.*

WOODEN DWELLING-HOUSE.

Raised from the ground, with a verandah on either side; five rooms, three of which to be of an interior measurement not less than 320 sq. feet, and two of an interior measurement not less than 220 sq. feet. Corrugated iron roof wood-lined; walls panelled; wooden floor. Doors and windows glazed. House painted and finished, ready for habitation, but not furnished. *Total cost of edifice, £300 to £500.*

DWELLING-HOUSE FOR LABOURERS WITH KITCHEN
AND ATTIC LOFT.

Walls of brick and lime; exterior roughly plastered; interior walls mud plastered and white-washed; roof of corrugated iron wood-lined. Floor of attic loft of inch pine; ground floor of bricks set in mud. Inside measurement of kitchen 18 ft. \times 18 ft.; five bedrooms of 8 ft. \times 18 ft. *Total cost, ready for habitation, £300 to £450.*

SHED FOR STORING WOOL AND OTHER PRODUCE.

Walls of brick with lime; earth floor; corrugated iron roof. Measurement not less than 35 ft. \times 70 ft. Double running doors; half-open loft. *Total cost, £300 to £400.*

WOODEN SHED FOR WOOL AND GENERAL STORES.

Sides of inch pine; corrugated iron roof; double running doors; half-open loft. Measurement not less than 40 ft. \times 80 ft. *Total cost, £240 to £280.*

BRICK HOUSE WITH CORRUGATED IRON ROOF, TO SERVE
AS BUTCHER'S SHOP, CARPENTER'S SHOP, STORE-
ROOM, ETC.

Divisionary walls, of brick set in lime; roof wood-lined; butcher's shop fitted up with hooks, grease bins, etc. Double and single doors. Exterior measurement not less than 20 ft. \times 48 ft. *Total cost, £250 to £300.*

SHEPHERD'S HOUSES.

Brick.—Exterior measurement 18 ft. \times 32 ft.; with attic storey, comprising in all three rooms and a kitchen. Roof of corrugated iron wood-lined; floor of bricks set in mud; mud plastered and whitewashed inside. *Total cost, £80 to £120.*

Wood.—Corrugated iron roof; wooden walls. Two rooms. Measurement 16 ft. \times 26 ft. *Total cost, £35 to £45.*

Wattle.—Walls of thick wattle; thatched roof. Comfortable hut measuring 16 ft. \times 24 ft. *Total cost, from £16 to £20.*

DIPPING PLANT.

For scab curing. Bath 20 yards long, with tanks for preparation of the dip. Construction of bricks and lime, plastered with Portland cement. Two dripping or drying pens measuring 6 yds. \times 12 yds. each; floor of tiles. Yards capable of holding and working up to 3000 sheep at one time. *Total cost, complete, £400.*

SHEEP YARDS.

For working say 3000 sheep at one time. Rails of spruce upon hard-wood posts; running gates, etc. *Cost complete, £35 to £40.*

FENCES.

Hard-wood posts at from 16 to 24 yds. apart; 7 wires; droppers every 2 yds. Sheep and cattle proof. *£80 to £120 per lineal mile.*

TAXATION.

At present time there is no fixed national law with respect to a poll-tax on stock, though in some of the Provinces a local law of this nature has been recently framed. The Province of Buenos Aires, which stands at the head of the sheep-growing States, is exempt from a poll-tax of this description.

There is an annual tax upon all land, entitled the Direct Contribution. The land is valued each year by an official assessor, who sends a schedule of his assessment to the land-owner. If the latter deems his land over-valued he has the right of appeal to a local and popularly appointed jury, and if his claim be just he obtains a rebate. The general standard for this valuation is two-thirds of the market value of the land. The tax is one-half per cent, or 5 per mil, on the amount. Permanent constructions are taxed on the same basis.

There is a wheel tax on all vehicles, carts or carriages. In 1892 this tax was \$12, national currency; equal to 15s.

The registration of a cattle brand is charged with \$25, national currency; equal to 30s. in 1892. A transference of same costs \$5, equal to 6s.

The registration of an ear-mark costs \$10, say 12s.; a transference of same \$5, equal to 6s.

The tax on cattle-brands and ear-marks is not annual, but once and for always.

Produce when sent to the market is taxed in the

following manner :—The producer sends a certificate to the local authorities, announcing his intention of remitting such and such produce to the market for sale there. He affixes a stamp of 5 cents. He obtains in exchange a *guía de campaña*, or permit, for which he pays a municipal charge of \$2, national currency (2s. 6d. in 1892), as well as the following tariff tax :—

Sheep-skins,	7 cents (1d.)	per 10 kilograms	(21 $\frac{9}{10}$ lbs.)
Lamb-skins,	4 cents ($\frac{5}{8}$ d.)	„	12 skins.
Wool,	7 cents (1d.)	„	10 kilograms (21 $\frac{9}{10}$ lbs.)

All live stock removed from one department to another pays the same municipal charge of \$2, and one cent (a little more than $\frac{1}{8}$ of 1d.) per sheep. This tax is not levied when stock is removed on account of epidemic, drought, or flood.

Live stock remitted for butcher purposes pays the same municipal tax of \$2, and 10 cents (1 $\frac{3}{8}$ d.) per head. The same charge is levied on stock exported to or imported from other countries.

There are some minor taxes, such as that upon dogs, which amounts to about 3s. per dog; but so insignificant as to deserve little notice. The more important ones are those which I have already enumerated.

There is a Rural Code, framed in 1856, which treats of land and stock, the conditions under which boundary fences are to be constructed, the impounding of stray stock, and the general legislation in rural matters. This code is at present being revised and

altered by a competent commission named by Government, in order to meet the exigencies which the progress in stock-breeding and agriculture during the past thirty-six years renders necessary. It would be of little assistance therefore to append the translation of a code which will probably be remodelled in a few months.

Before closing this chapter upon prices, it may be of some interest to the reader to have a general outline of capital invested and revenue therefrom, treating of a sheep farm in the Argentine at the present time. Two square leagues, or say 13,332 acres of land—capable of carrying 16,000 head of sheep, 1600 head of cattle, and 200 horses and mares—are supposed to be purchased at a price of 25s. per acre. There is a steading in need of some repair, and incomplete paddocks which necessitate an extra six miles of fencing. It is necessary to include cattle and horses in this table, as they are inseparable from the more remunerative sheep upon a farm. The sheep are supposed to be Lincoln crosses, costing 9s. per head. The cattle are of an average quality and cost 11s. per head. The rams, bulls, and horses are estimated at current prices. Though the outlay in capital is stated, in order to ascertain the percentage of net annual profits, it is nevertheless presumed that the estate is in thorough working gear at the time of finding the total annual revenue. It is only natural that in the first year there occur certain working expenses and losses which would not be repeated; it

OUTLAY AND REVENUE FROM A SHEEP FARM.

	REVENUE.
CAPITAL OUTLAY.	
Purchase of land, 13,332 acres @ 25s. per acre	£16,665 0 0
6 miles additional fencing	600 0 0
Repair of buildings ; purchase of carts, tools, etc., say	1200 0 0
16,000 sheep @ 9s. £7200 0 0	
275 tups " 70s. 962 10 0	
1600 cattle " 11s. 880 0 0	
16 bulls " 80s. 64 0 0	
60 horses " 40s. 120 0 0	
140 mares " 12s. 84 0 0	
3 stallions " 200s. 30 0 0	
Driving stock, distributing same, etc.	9340 10 0
Total Capital Outlay	£28,305 10 0
Capital Outlay	£28,305 10 0
Net Income	3331 16 6
<i>Profit per cent</i>	<i>11½</i>
Wool.	
80,000 lbs. fleece wool @ 7½d. £2500 0 0	
5600 " bellies and pieces " 2½d. 58 6 8	
9600 " lambs' wool " 6¼d. 250 0 0	
<i>Sheep-skins.</i>	
1200 @ average price 2s. 9d. each	165 0 0
<i>Lamb-skins.</i>	
1000 @ average price 4d. each	16 13 4
<i>Cow-hides.</i>	
200 @ say 8s. each	80 0 0
<i>Horse-hides, horse-hair, calf-skins, tallow and minor produce, say</i>	
	35 0 0
<i>Stores of stock.</i>	
1800 wethers @ 9s. . . . .	.£810
1000 cull ewes for butcher @ 8s. 400	
1200 culls @ 7s.	420
180 steers " 35s.	£315
260 old cows " 15s.	195
30 tamed colts " 25s.	510 0 0
70 foals " 8s.	37 10 0
70 foals " 8s.	28 0 0
<i>Deduct.</i>	£5310 10 0
Working expenses, 35 % on gross revenue .£1858 13 6	
Direct Contribution and other taxes	120 0 0
Net Income	£3331 16 6

would be misleading, therefore, to take the first year as a fair test.

In addition to the $11\frac{3}{4}$ per cent net profit upon capital outlay there is to be added the improvement in the value of stock from selling off the most inferior. There is a further indirect profit in the increasing value of the land.

This forecast deals with an average class of sheep treated in an ordinary way. There is room to increase the annual turn-over by an intelligent administration of the estate. The percentage allowed for working expenses on a farm supposed to be divided into paddocks not only covers everything, but is probably in excess of what it would really amount to. But it is better on the one hand to count upon poor prices and a medium increase, and on the other upon more than usual expenditure. Even so the results are sufficiently inviting to encourage colonists.

WEIGHTS AND MEASURES.

LINEAL.

Lineal league	= 6000 Span. yds.	= 5196 metres	= 5682 Eng. yards.
Kilometrical lineal league	= 5000	„ = 5468	„
Lineal "square"	= 150 Span. yds.	= 130	„ = 142
Kilometre	= 1000	„ = 1094	„
Metre			= 39.37 inches.
Spanish "vara" or yard	= 86.6 centimet.	= 34.09	„

Old Lineal Measurement.

150 "varas"	= 1 square.
40 squares	= 1 league.

New Lineal Measurement.

1000 metres	= 1 kilometre.
5 kilometres	= 1 kilometrical league.

SUPERFICIAL.

Square league = 1600 "squares" = 2699·84 hectares = 6671·69 acres.
 "Square" = 1 hectare, 68 areas, 74 centiares = 4·17 "
 Do. = 22,500 sq. Sp. yds. = 16,874 sq. metres = 20,182 sq. yds.
 Kilometrical sq. league = 1481·56 "squares" = 2500 hect. = 6177·86 acres.
 Hectare = 2·47 "

Old Square Measurement.

150 "varas" × 150 "varas" = 1 square.
 1600 squares = 1 sq. league.

New Square Measurement.

100 sq. metres = 1 area.
 100 areas = 1 hectare.
 2500 hectares = 1 kil. sq. league.
 2699·84 ,, = 1 old ,,

WEIGHTS.

Old Measurement.

1 Arg. lb. = 4594 kilogrammes = 1·0128 Eng. lbs.
 1 arroba = 25 Arg. lbs. = 11·4850 kilogs. = 25·3201 "
 1 quintal = 4 arrobas = 45·9400 ,, = 101·2803 "

New Measurement.

1 kilogramme = 2·1767 Arg. lbs. = 2·2046 Eng. lbs.

SALES OF PRODUCE.

All farm produce is now sold by weight.

	<i>Formerly sold by</i>	<i>Now sold by</i>
Wool	Arroba of 25 Arg. lbs.	10 kilogs.
Sheep-skins	do.	kilog.
Tallow	do.	10 kilos.
Cow-hides	"Pesada" of 34 lbs.	10 "
Horse-hides	Arroba of 25 "	10 "
Horse-hair	do.	10 "
Grain	"Fanega"—say 210 lbs.	100 "

CHAPTER V

OF THE CHIEF DISEASES IN SHEEP, AND THEIR TREATMENT IN THE ARGENTINE REPUBLIC—OF POISONOUS WEEDS

It is not proposed in this work to treat of the organic or accidental diseases in sheep, but only of those whose epidemic character affects the whole economy of a sheep farm. For the individual treatment of special diseases in animals whose value entitles them to singular care, the reader is referred to the numerous standard works already existing on the subject.

Scab (Psoroptes communis). — This is pre-eminently the worst enemy with which the Argentine sheep-breeder has to contend. The disease is commonly reputed to have been introduced into the country in 1838, when a shipment of German merinos, infested with the malady, were imported to Buenos Aires. But there are certain atmospheric and natural circumstances which go far to prove that if scab was not at all times a disease native to the Argentine Republic, it at any rate found a soil peculiarly favourable for its development. That it should have only merited general attention in 1838

is not surprising when one remembers that the sheep-breeding industry in the River Plate practically dates from 1835. The more assiduous tending of flocks, the bringing of sheep to yards and other centres of contagion, and the introduction of new blood into the semi-wild droves, would naturally have the effect of developing the contagious character of the disease.

To draw a parallel between the Argentine Republic and Australia is misleading in the extreme. Given equal conditions in all other respects, we have here to contend with a climate which is specially adapted for breeding scab. The atmosphere in the great sheep country, viz. the Province of Buenos Aires, is very humid, and this is the particular condition required for the production of the acari. As one travels farther west toward the Pampa Central and the Cordilleras, scab is found to become less frequent. This is partly due to the extensive run enjoyed by each flock, and their scattered condition; but it is also due in part to the aridity of the atmosphere, which is uncongenial to the scab insect. As one returns towards the coast and enters the moist district, the ravages of scab at once show themselves. Thus not only have we to militate with a disease universally contagious, but we have to treat it under circumstances peculiarly favourable for its production. Scab has not been eradicated in New Zealand, chiefly owing to the fact that in the hill-country some of the sheep gain impenetrable or inaccessible spots, and cannot be collected for dipping. Scab has not been

eradicated in England nor on the Continent; but both there and in every other country, except perhaps the Argentine, the disease is systematically treated, and so kept down that it takes a second or third rank amongst the many enemies of the bleaters. So it should be in the River Plate, and the sheep-breeder who honestly grasps his nettle and establishes a detail system in his treatment of the disease, will eventually find that, though unable to entirely stamp out the evil, he can keep it within such reasonable bounds as to no longer occasion him either loss of time or expense.

As contagion is the first cause of the propagation of scab, so it should be the first matter treated. Every spot where sheep gather together must be revised daily to see that no means of communicating the disease exist, or are created. Where sheep mob together at mid-day, care should be taken that any posts or wire in their vicinity are whitewashed and tags of wool removed. All fences of the paddocks should be revised daily, and if any tags of wool are found upon the wires these should be removed: loose wool lying about upon the ground should be destroyed. It is as well to keep sheep from frequenting favourite bare spots, where they come too much in contact with one another. By thus paying attention to the stock during the time it is afield, feeding, and sleeping, and keeping it away from all points of contagion, one of the chief causes of the propagation of scab is removed.

But of course the flock must come to the yard

now and then, and here is the chief danger. The yard in which the flock is to be worked should be constructed with a view to delaying the flock as little time as possible there. It should have a race with a parting gate, so that wethers, crocks, culls, and so forth can be parted as rapidly as possible. Wherever a portion of a flock is to be removed or treated in any way, the first operation should be to *part* that portion, in order that the remainder of the flock may run back to pasture as soon as possible. Races are indispensable. Running gates, instead of either hinged ones or gates tied with wire, should be used; it saves time. In short, every improvement which facilitates the rapid working of the flock should be introduced.

The system of hand-curing or pouring is one of the most active causes of the propagation of scab by contagion. A flock is yarded in the morning, and the shepherd, accompanied by an assistant or two, proceeds to hand-cure the infected sheep. He drives a portion of the flock into the working pen, and selecting an infected animal he throws it down and proceeds to examine it in search of the pus-formed eruption, or *granito* as he calls it. This he softens with his hands and soaks with remedy, generally applied doubly strong, for no earthly reason except that he thinks it will be doubly effective. A doctor acting on the same principle would kill more patients than he would cure. This wearisome process goes on until the shepherd is satisfied that every

infected sheep in the pen has been treated. Another *point* of sheep is then driven into the pen and the same treatment is observed until the whole flock has been worked, by which time the day is generally spent.

It is noteworthy to enumerate the amount of well-nigh irreparable damage this misguided son of toil has achieved in a single day :—

1. Presuming that the flock was in a fairly sound condition, it may be calculated that 20 per cent of the total number have been treated for scab; consequently 80 per cent have been kept in close contact with their infected fellows for a period varying from three to nine hours.

2. The same 80 per cent have been unnecessarily kept from feeding for the same period.

3. The shepherd has a habit of pulling out all the loose wool he finds upon the spot attacked by the acari, and this loose wool he throws upon the ground. In an hour or two he has the pen strewed with tags of infected wool, and upon this bed of disease he not unfrequently throws down *a sound sheep* to examine it. I have seen a sound sheep leave the pen with three or four tags of scabby wool sticking to its back.

4. Even those sheep treated for the scab may have been cured in one spot, and left untouched in another. An occasional sheep escapes the vigilance of the shepherd, and leaves the pen uncured.

5. The effect of the over-strong remedy discolours a portion of the fleece, stunts its growth, and burns and blunts the serrations of the wool, causing that harsh dull touch so well known to wool-staplers.

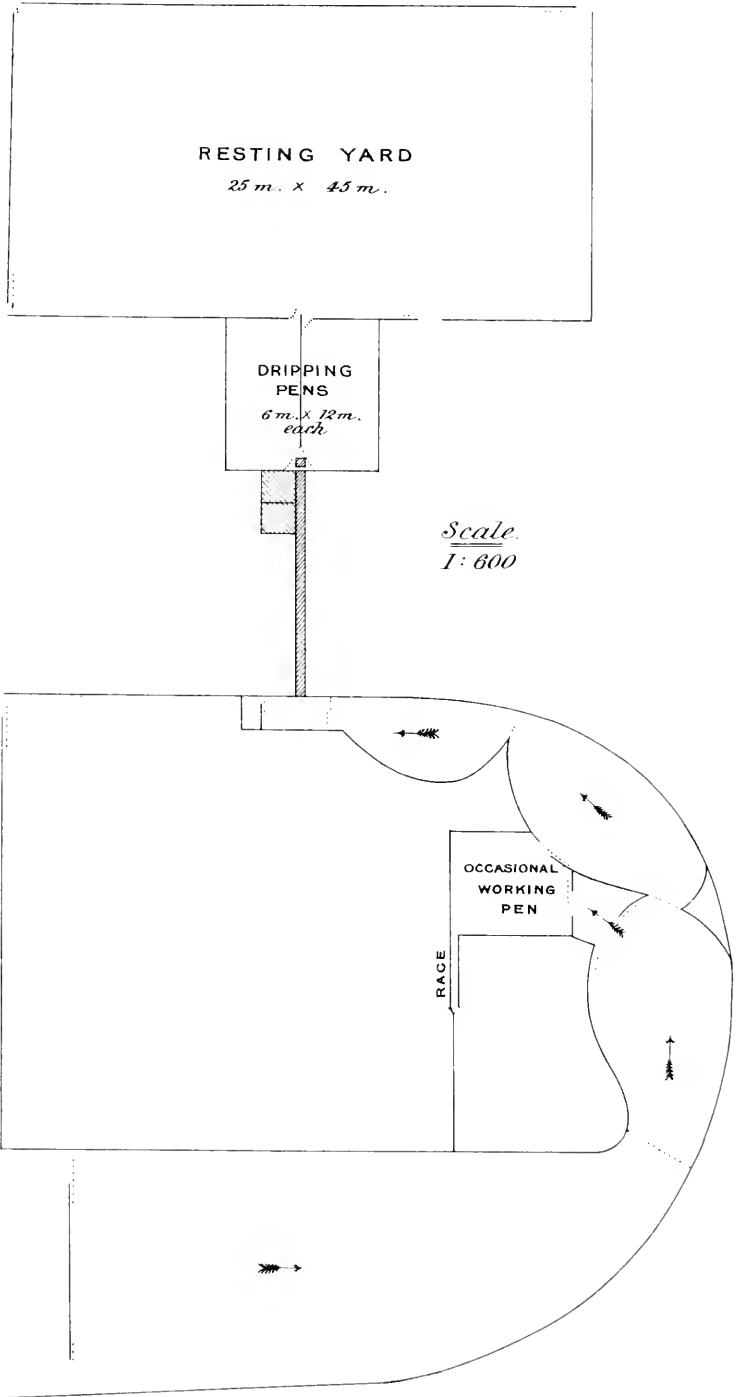
6. By the end of the day the disease has been propagated to an extent far superior to its previous state.

7. A day's work has been lost, and a considerable sum of money wantonly squandered.

A more complete method of "how not to do it" could scarcely be conceived. Hand-curing should be entirely abolished in treating large flocks of sheep. It can only be used in the case of a small stud, where the shepherd detects the very first apparition of the disease, and separates the infected animal from its fellows before the acari have had time to propagate. Even in such cases the man must be thoroughly up to his work, and use the remedy discreetly. And upon no account should he pull out the wool which he finds partially loosened upon the infected spot. If he does so, he is leaving in the pen or yard where he is working another sure and certain cause of contagion.

To treat scab systematically and in such a way as to render it a mere casual disease and one that occasions little expense, there is only one form, and that is to construct a bath with dipping appliances. A well-organised run requires one bath for every 25,000 sheep. If a greater number than this has to be brought to the same dip, there is a danger of throwing the dipping rotation in arrear, and if this occurs the object is entirely lost. Within twenty days after shearing, the flock should be dipped, each sheep remaining immersed not less than fifty seconds. While the flock is being dipped, the paddock or run whence it comes should be revised to see that no

PLAN OF SHEEP-DIP WITH YARDS





stray animal has remained, or dead sheep been left with the skin unremoved. Once dipped, care should be taken that the flock enters no yard where unsound sheep have been, or where sheep-skins are hanging, or where any other source of contagion exists.

If the flock is kept in the open the greatest care must be taken that no undipped sheep strays in amongst the dipped ones; the latter can be raddled at the bath to distinguish them the easier, though generally the dark colour left by the dip is sufficient. The flocks should be dipped in rotation, especially in the case where they are shepherded in the open, undivided from one another by fences.

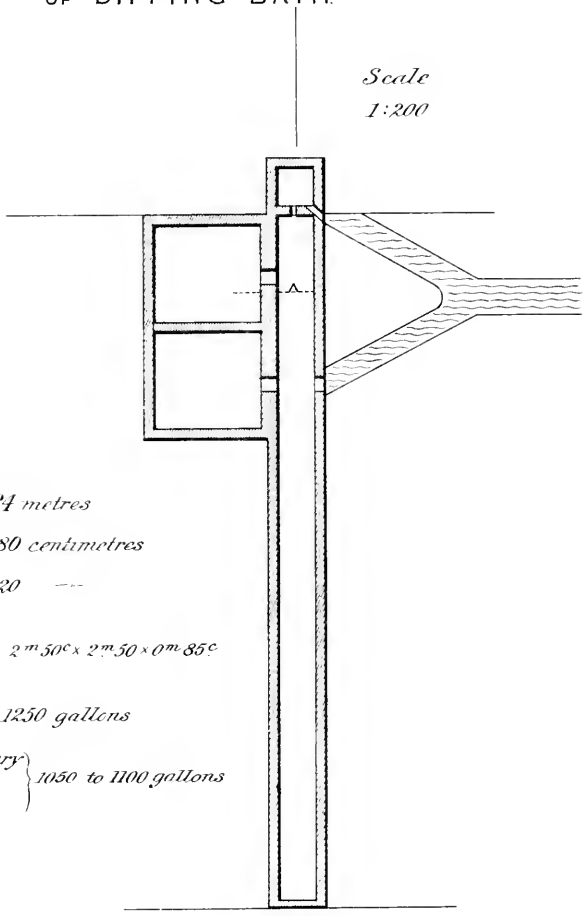
Not later than fifteen days after the first dip, the flock should be dipped for a second time, observing the same care as upon the first occasion. After this second bath the flock should be revised not less frequently than once every ten days, and all animals showing the least sign of scab should be raddled, parted out in the race, brought to the bath, and dipped. It is in these revisions that the greatest care is required. If the first two baths have been as effective as they should be, the scab will be almost entirely eradicated. A competent shepherd, with a good working yard, should be able to run a flock of 2000 head through in two hours at the outside. He should never catch a sheep, but, raddle in hand, mark all the doubtful ones, separating them in the race and dipping them. Following this system with care the scab will be brought to so low an ebb that by lambing

time the ewes may be left untouched for two or three months. This means a saving of 5 to 10 per cent in the lambs, and an increase of about the same percentage in the wool return.

Upon the construction of the bath there is no occasion to dwell at too great length. The dimensions of a bath should be more or less as follows: Length, 24 metres; sloping sides, width at top 80 centimetres, at bottom 10 centimetres; depth, 120 centimetres; a well-graded slope both at entry and exit. In such a bath an average-sized sheep will swim in 1100 gallons, and will remain immersed 55 seconds. The entry should decline gradually down, and a great number of sheep will enter of their own accord. If the bath be constructed above the ground-level, or only half sunk in the ground, it facilitates the emptying of it; and, moreover, the sheep will have to run up a slope to get to the entry of the bath, which is always an advantage. The yard should be circular, the sheep coming up to the bath at right angles to it. The dripping pens where the sheep stand after emerging from the swim, should be, say 6 metres by 12 metres each, capable of holding 280 head, with a pendant of $2\frac{1}{2}$ centimetres to the metre both from sides and far end to the point of the bath, where a small well or siphon of the same depth and superficial measurement as the bath should be constructed in order to receive the drip from the sheep. The communication between this well and the bath should be at the top, in order to let the dirt and

PLAN AND VERTICAL SECTION OF DIPPING BATH.

Scale
1:200



Length of Bath 24 metres

Width at Top 80 centimetres

Depth 120

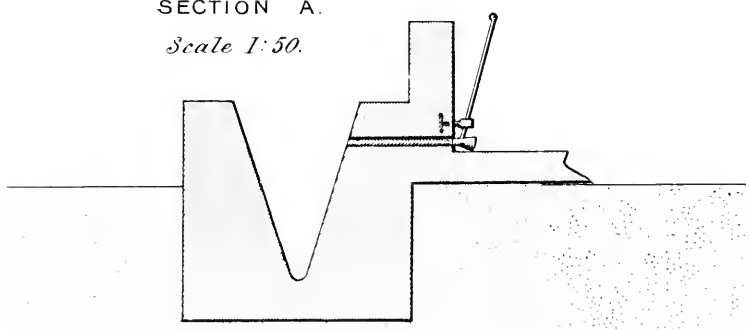
Measurement of Deposits }
 for preparing remedy } $2\text{ m. }50^{\text{c}} \times 2\text{ m. }50 \times 0\text{ m. }85^{\text{c}}$

Capacity of each Deposit 1250 gallons

Amount of Liquid necessary }
 in Bath to Swim Sheep } 1050 to 1100 gallons

SECTION A.

Scale 1:50.





sediment settle to the bottom, and not run into the dip. It should also have a communication with a ditch on the outside, in order to run off the rainfall from the dripping pens when this is necessary. Much ingenuity has been exercised in the contrivance of mechanical apparatus for immersing the sheep in the dip; but these flights of rustic engineering skill are somewhat beside the mark. It can be a matter of small satisfaction to the breeder to have succeeded in loading his bath at the rate of 50 sheep per minute, or running through 10,000 head per diem, if the animals are improperly dipped and come out at the other end still infested with scab. Too much outlay and thought in this direction is misapplied. The reader will find the plans accompanying this chapter simple and of easy execution, and a bath built in accordance with them will prove effective.

Most of the remedies on sale in the market are efficacious. The New Zealand inspectors specially recommend the use of sulphur as one of the ingredients of a sheep dip, in order to protect the animal from subsequent attacks of the acari by coming in contact with trees, fences, etc., where the parasites have been known to exist for a long period away from the sheep. Some dips are injurious to the wool and should be avoided for that reason; and it is on this account that many prefer leaf tobacco, which, though costly and not easily manipulated, gives a fine soft character to the fleece and encourages its growth. When practicable, it is better to use the remedy

warm, and it will be found more thorough in its results. But the main object is to keep the dip as clean as possible, the remedy always mixed in the right proportion, and see that every sheep remains immersed a minimum period of fifty seconds.

There are other causes which indirectly promote the propagation of scab, and which must be attended to in order to secure complete success. Not the least important of these is the general health of the animal. Wherever land is overstocked and the sheep deprived of their proper quantity of daily food, scab is sure to gain a foothold. It is a mistaken economy to overcrowd a paddock; it occasions a consequent loss of lambs, degeneration of body, and reduced fleece. Every sheep should have its due space in which to graze, and be at rest ruminating by 10 o'clock in the morning. In winter time it requires more food than in summer, and unfortunately the practice is generally *vice versa* in this country.

The wether which does not give his 8 lbs. of wool and 58 lbs. of dead meat when a two-shear, and the ewe which does not give her 6½ lbs. of wool and rear a healthy offspring, are occasioning a loss to the owner.

Flocks should also be kept clean throughout the year, especially in the autumn when the grasses have a purgative effect. Lambs should be shorn at the same time as their mothers, even though their yield does not reach a pound of wool. Nothing is more harmful to a flock than half a dozen "summer lambs"

with their untidy infant wool upon them; such animals generally carry a very hot-bed of scab on their backs.

Not unfrequently a breeder pays attention to all these points and nevertheless loses his time and money through the carelessness of a neighbour less industrious than himself. When such a case occurs there is no remedy but to construct a double fence. The money expended on this would not be lost, for between the two fences trees can be planted which in ten or fifteen years would become a mine of wealth to their owner.

Foot-rot.—Classified under this name there are two diseases different in nature and character, but with some general resemblance which has occasioned the confusion of one with the other. The first of these is a non-contagious disorder of the hoof caused by injury, a wet or damp land underfoot and moist climate, and is more frequently found in the fine and short-woolled breeds than in the long-wools. The other is a contagious disease not originated by any particular condition of soil or climate, though possibly finding damp lands and moisture propitious to its development, as well as the weak hoofs of certain breeds of sheep,—notably the merino.

The first of these disorders, viz. the non-contagious and occasional one, is of easy treatment. The hoof is observed to break and become covered with a warty growth at the extremity; or serrations and cracks are found in the upper part of the external callous

growth ; or the outside edge of the wall of the hoof overlaps and grows inward—in every occasion causing lameness, and consequent falling off in condition, in the sheep. Certain breeds suffer more than others from this disease, the structure of their hoof being less able to resist the action of a damp soil, a dirty yard, and similar causes ; the merino breeds appear to be particularly subject to it, and the black-faced or Down breeds are also martyrs to the complaint. The treatment is to pare the diseased part of the hoof away, having great care not to remove too much or thin the sole of the foot, a mistake too often committed by over-zealous shepherds, who cut to the quick in a most unnecessary manner. An application of arsenic and water, carbolic acid and water, or other corrosive acid in a fairly strong proportion, will suffice to cure the injured hoof. In breeds such as the merino, where there is a distinctive tendency in the hoof to grow long and overlap, constant revision of the stock is necessary to keep the hoofs in good walking condition. It is advisable to explain to the shepherd that a sheep's hoof is not a subject for fancy decorative carving, and that all that is aimed at is to pare down the overgrown edges and render the sole of the foot perfectly level. With the long-wools this is seldom necessary, and it is the writer's experience that the less their hoofs are cut and pared the better.

The second or contagious disease is of a much more serious character. It can readily be dis-

tinguished from the occasional disorder, in its first stage, for it always appears in the coronary ball at the junction of the claw. From there it grows downwards, forcing the shell of the hoof to break and fall loose, covering the hoof with horny excrescences and fungoid growth, distorting the claw and occasioning the outward growth of some part of it, and completely disabling the sheep from walking. This disease can only be developed by contagion, though it is extremely probable that a damp season and wet land will help to increase its propagation more than any other climatic condition; and merino sheep will more readily contract the disease than any other breed. The treatment of this malady should be as prompt as possible to prevent its spreading through the entire flock. The following measures are recommended:—

1. If perceived in time, immediate isolation of the diseased animals.

2. The treatment of these diseased animals, either cutting away and cauterising the rotten portion of the hoof, or dressing the wound with nitric acid, butyr of antimony, or some equally powerful acid.

3. The general treatment of the entire flock by making the sheep walk through a foot bath not less than twenty feet in length, in a preparation of either carbolic acid mixed at 1 to 50, or arsenic in the same proportion. Another equally simple and practical preventive is recommended, viz. driving the sheep over a dry floor covered with lime.

4. Avoid as much as possible allowing sheep to

depasture in the paddock where the diseased ones have been feeding. Destroy any part of the hoof removed from the diseased animal, and the straw bedding on which it has lain when being treated. Remove in like manner every cause of contagion by which the disease may become propagated.

There is little doubt that in certain parts of the country, notably in the south-east of the Province of Buenos Aires, the dampness of the land underfoot and more particularly the humidity of the atmosphere render the merino breeds of sheep, such as the Negretti, Rambouillet, and others, an unprofitable stock for the "estancia," by reason of their weak and easily-injured hoofs. They are to be seen in such districts hobbling painfully after one another in search of food, many of them on their knees, and wholly unable to cover the daily area of ground necessary to provide them with a sufficient supply of nourishment. The consequent result is a thin carcase, a predisposition to epidemics of every order, and a poor fleece. Such land is not intended for such stock; and the same animals, removed to the higher and drier lands of the interior and the north, become metamorphosed in a year, growing a robust body and a healthy elastic fleece. It is well, therefore, to point out that though foot-rot proper is a contagious disease, and not originated by damp land or moist weather, it nevertheless finds the most favourable field in land of such a nature and in weather of this description; and will more readily

attack the merino and short-woolled breeds of sheep than the long-wools.

Throat-worm, or Lung-worm (Filaria bronchitis aut strongulus).—It is to be regretted that so little is really known of this parasite, whose invasions in the south of the Province of Buenos Aires have occasioned serious losses to the sheep-breeders, particularly during the past year of 1892. Its true nature and history are still insufficiently determined, and a system of treating it, when dealing with large numbers of infected sheep, has not yet been established on a practical basis.

The most generally-accepted opinion is that the *ovae* of the pectoral worm retain their vitality in low and swampy land for many months; and that the sheep whilst browsing takes up some of the eggs, which become hatched in the mouth. The young bronchial worms develop there and go through the respiratory canals until they reach the lungs, where they inhabit the cellules, causing death. According to some authorities these same *Filaria* have been found in the alimentary canals, without their presence being evident in either the bronchial tubes or in the lungs. This would seem to indicate that there is some sympathy between the *Filaria strongulus* and the *Taenia expansa*, which latter invades the intestines, causing what is called parasitic diarrhoea, and which is frequently fatal.

The symptoms of the bronchial or lung-worm are the following:—The sheep is troubled with a constant

cough, which racks it, especially at night. The mouth and nostrils are sometimes covered with a discoloured mucus. The animal lags behind the flock, eats little but drinks frequently. Thinness soon follows, and the sheep dies. At times when the invasion of this parasite assumes an epidemic character, a number of the sheep, particularly of the younger ones of the flock, will be observed to suffer from constant diarrhoea. Here again there is evidence of a sympathy between the *Filaria strongylus* and the *Taenia expansa*. But there is little doubt that when, owing to atmospheric circumstances, inundations, and so forth, there occurs an epidemic such as the invasion of the bronchial worm, and which appears almost spontaneously in various districts of the country, the chief cause of the malady is accompanied by minor disorders due to the same unfavourable condition of the year which has served to develop the principal epidemic. There have been cases known in which an animal which has died from parasitic diarrhoea has been found upon *post-mortem* examination to have had bronchial worms in both throat and lungs. Some authorities state that the eggs of the lung-worm are hatched in the alimentary canal, and, following the circulation of the animal organisation, reach the bronchial tubes and the lungs, where they find the most favourable conditions for their existence. Others suggest that the young worms enter the nostrils of the sheep when it is feeding, and either crawl or are inhaled by the respiration to the lungs, where they develop, reproduce,

and infest these organs. The lung-worm requires humidity, though it can exist upwards of thirty days in a dry spot (*Ercolani*). The land most favourable for the *Filaria* is a clay soil, swampy, marshy, or low-lying. It is, nevertheless, found sometimes upon good land and in a dry season. In New Zealand it has been fatal in mid-summer and with dry weather.

When one considers the vitality of this parasite, its great fecundity, the nature of the southern lands of the Province of Buenos Aires, and their almost continuous state of humidity, it appears surprising that the whole of the sheep stock does not succumb to the plague. But it is probable that the changes in the vegetation and the geological action of the soil have a curative effect on the pastures; and frequently also the constitutional state of the sheep helps to resist an invasion of the parasite and prevents it from assuming epidemic proportions. Then there comes an inclement season, a superabundant vegetation—such as was the case in the spring of 1891—followed by a rainy period and partial inundations, and a more or less general invasion of lung-worm is the consequence.

In submitting a few suggestions for the treatment of this malady, I have divided them under three heads: The reduction of probabilities; preventive measures; and treatment of the disease.

The Reduction of Probabilities.—The first matter for consideration is the constitution of the sheep. A robust animal, well bred and of a sound constitution,

will resist maladies to which a more delicate animal would succumb. The breeder should satisfy himself that his flocks are of the class best suited to the quality of the land they feed upon. The merino breed fares badly on low-lying ground, above all when the climate is moist; it is not then the sheep to have in localities subject to invasions of the lung-worm, for its weak health renders it a ready victim for the first epidemic that may occur. The same may be said of the Down sheep. There remain therefore the long-wools, of which the Lincoln, Leicester, and Romney Marsh are the best-known representative breeds in this country; and of all these the Lincoln is the favourite, being found to combine the greatest number of desirable qualities. It does not indeed possess any magic virtue whereby to resist the lung-worm, but its constitution is so well adapted to the class of land of which we are treating, that it is better able to resist the epidemic. Many cases can be cited in which a sheep has been known to have suffered from lung-worm, and has nevertheless been able to contend against the disease and recover. An animal of a weaker constitution or in poorer health would have succumbed. But the selection of breeds and the production of special types is the whole science of sheep-breeding, and there is no need to dwell longer upon this particular point with reference to the lung-worm.

The following measures are recommended, though they are not always of easy execution:—(1) Draining

of the land by making small shallow ditches, close to one another, in the spots where the *ovae* of the lung-worm are suspected to exist. (2) Plough the land where the lung-worm is suspected to exist, and spread powdered rock-salt in the proportion of from 500 to 600 kilogrammes per hectare. (3) Mow the grass on the land where the lung-worm is suspected to exist.

Preventive Measures. — If there is reason for anticipating an invasion of the *Filaria strongylus*, all the following measures will be found useful. Some of them are of more difficult practice than others.

1. Do not allow the sheep to feed in suspicious places.

2. Do not admit on the run a flock which shows symptoms of lung-worm. Do not let any suspicious animal mix with the healthy ones.

3. Scatter rock-salt with a liberal hand. Place here and there small troughs containing crushed rock-salt and sulphur mixed. At least once a week add a small quantity of lime to the water in the well troughs.

4. Separate all sickly animals from the flocks, even although they do not show any symptoms of lung-worm. Keep these animals apart, giving them a little hay or other dry food.

5. Enclose the flocks at night either in the yards or in a small dry paddock. Do not let the sheep out to depasture too early in the morning.

The negative results of many of the above measures

arise from their too tardy application. They are not recommended as curative of the disease, but only as preventive. Unfortunately it is too frequently the custom to disregard the warning signs of the coming epidemic until it is raging in full fury amongst the sheep; such measures as the above are then applied too late.

Treatment of the Disease.—Even when the sheep is attacked by lung-worm much can still be done to save it.

1. Keep the sick animal upon hay and other dry food, and give it water containing $1\frac{1}{2}$ oz. of common salt mixed with 6 or 8 ozs. of lime-water.

2. Administer a drench of $\frac{1}{4}$ oz. of turpentine with 1 oz. of sweet oil.

3. Fumigate the sick animals. From thirty to forty are enclosed in a shed with all the doors and windows shut. From the roof-joists there is suspended a pot filled with fire-wood or other fuel, to which is added a quantity of sulphur and tar. The animals are kept inhaling the fumes of this mixture for from twenty to twenty-five minutes. This operation may be repeated two or three times.

4. A New Zealand breeder of considerable experience recommends the following:—In cases where a whole flock is suffering from lung-worm, enclose the sheep in a yard for a sufficient period to render them all thirsty—twenty-four hours or so. Arrange outside the yard a number of water-troughs well filled with lime mixed with water. Release the sheep and see

that they are led to the troughs. The most infected by lung-worm are those which will drink with the greatest avidity. This cure has been tried successfully in New Zealand. It is, however, easier of execution in the summer time than at any other season.

Fluke or Liver-worm (Distoma hepático); Sp. Saguaipé.—This deadly parasite, the occasion of the disease known as *the rot* in England, is more fatal in its ravages, as it is more limited in its sphere of action, than the lung-worm. It is fortunately unfrequent in the Argentine, and is only to be found where there are stagnant pools of water exposed to the sun.

In appearance it resembles a sole, or leaf, varying from one-half to an inch in length, and one-quarter to a half in breadth. It attacks the liver, causing at first an apparent improvement in the health and condition of the sheep, which is soon followed by a wasting away and death. The most rapid way by which its presence can be detected is in the colour of the membranes of the eye, which become pale and white. The animal exhibits an indisposition to eat, and is attacked by an incessant thirst. If there be any reason to suspect the existence of fluke in the neighbourhood of a flock, any sheep showing the symptoms of the disease should be at once destroyed and carefully examined. In cases of infection the liver will be found to be pale, and peopled in a more or less degree with the parasite.

The history of the propagation of the fluke is interesting and worthy of special mention. The

embryo of the *Distoma hepaticum* bores its way into a water-snail, where it becomes converted into a peculiar organism termed *cercaria-sac*. Here another development takes place in the shape of a brood of young *cercariae* formed within the sac, each of which becomes a parent. The offspring of these, either in the first or second generation, returns to the form of the original progenitor, the *distoma*. This curious metamorphosis, by which the first parasite is not reproduced in its offspring until the third generation, has been termed by Steenstrup, "alternation of generation." Mr. W. C. Spooner, from whose work on the structure of the sheep this description of the propagation of *distomata* has been abbreviated, says:—"Most *cercaria-sacs* are of simple organisation, but they are found of various forms, according to the kind of *cercariae* developed.

"When first set free from the sac, the *cercaria* is rather tardy in its action, but after a time it swims freely about, assisted in its various movements by the length of its tail. In the most perfected *cercariae* no sexual organs can be detected, although in other respects their resemblance to *distomata* is so complete.

"It is evident from this that they have to undergo a higher form of development, which they can only obtain by becoming entozoic to other creatures. Some varieties of them have been observed to bore their way into water-snails, to cast off their tails, and develop into flukes, thus forming the series of changes.

After entering the body of the snail, and before being transformed into the fluke, the cercaria rolls itself into a little ball and passes into the pupa state, by emitting from the surface of its body a mucous secretion which encloses it.

“Encysted cercariae, besides adhering in large numbers to a great variety of mollusca, the larvae of aquatic insects, etc., are likewise found free in water. How long their pupa state may continue is not known; but, according to the experience of Steenstrup, in some varieties of cercaria it does so for many months.”

The distomata are peculiarly offensive to ruminants, where they are not immediately exposed to the action of the gastric juice, but remain for some length of time in the rumen and other preparatory stomachs whose secretion is non-digestive.

Once a sheep is attacked by distoma the cure is problematical, if not entirely impossible. To remove the flock to a salt marsh would perhaps save a portion of its number; and in a similar way an ample supply of salt will serve to some extent as a preventive. But the soundest advice that can be given to breeders in the Argentine who have the misfortune to find this parasite invading their flocks, is the following:—

1. Sell immediately to the butcher every animal which shows the slightest symptoms of being attacked by the distoma, taking advantage of the temporary improvement in the condition of the

animal which always follows the first invasion of the parasite.

2. Remove the flock without loss of time from the land where the parasite has made its appearance, and continue weeding out the infected animals if any remain.

3. Find out if possible the source and origin of the invasion, and stamp it out. If stagnant water exists, drain it off or keep the stock away from it.

4. As in the case of the lung-worm, have a plentiful supply of rock-salt everywhere.

Of other diseases.—Lest this chapter should swell out into a work upon the diseases of the sheep, and so exceed the original intention with which it was written, the reader is referred to the numerous useful works already written upon the pathology of the sheep, and which are to be obtained through any bookseller. But before leaving the subject of epidemics and diseases in sheep, with special regard to the pastoral industry in the Argentine, it would be well to again bring to the mind of the reader the three points upon which the well-being of his flocks, and consequent satisfactory return from them, most depend. *1st.* That the stock he breeds should be that best suited, by reason of its class and tradition, to the land which carries it. *2nd.* That the stock should at all times have sufficient pasture to graze upon—a matter already alluded to at some length elsewhere. And *3rd.* To observe a careful selection of tups, and have an eye to the physical and constitutional quali-

ties of the sheep. A breeder should always inform himself of the history of the stud farm where he buys his tups, and satisfy himself that they bring with them no hereditary defects or predisposition to contract maladies of an epidemic character. No matter what the breed be, there is a certain standard of physical condition necessary to all animals. Ribs springing well from the back, and rounded, to give ample room for the respiratory and blood-making organs; a full and deep chest; a well-placed neck, and a clear and full eye. Acting upon this same principle of physical selection, the breeder must ever continue to weed out from his flocks the ewes which, from their bad build, threaten to reproduce a weak offspring; and by thus establishing a healthy constitutional type, his stock will be the better able to resist the attacks of epidemic maladies, and be less exposed to contract lung or other organic disease. The ravages of all the more deadly epidemics are greatest when the stock is of a poor type and physically unable to make a stand against the enemy.

Poisonous Weeds.—The pastoral districts of the Argentine are fortunately very free of weeds of a poisonous character, though there exist one or two, peculiar to certain districts, the effects of which may be avoided with a little common care. Most conspicuous amongst these is the

Romerillo Plant (*Baccharis cordifolia*), vulg. Sp. *Mio-mio*.—This is found in considerable abundance in certain pastures. In appearance it is not unlike

the young shoot from the seed of the pine tree when about two months old, and grows in small bush-like clusters, attaining a height of from nine inches to a foot, the foliage of a dark green colour, and surmounted with a feathery flower of a whitish-yellow hue. It grows intermixed with the common grasses of the pasture land, but can easily be detected. If eaten in any quantity by stock, death ensues in from twelve to twenty-four hours, the animal's mouth and nostrils becoming covered with foam, and the action of the weed occasioning apparent great pain.

Stock born and bred upon land where this weed grows will avoid it, and there is never any loss except in an occasional lamb which has been weaned at the time the young *romerillo* has commenced to spring up. But stock brought from land where the plant is unknown, to a district where it flourishes, will assuredly eat the poison and die in considerable numbers if precautions are not taken to prevent it. More particularly fatal is the poison to stock travelling from one place to another, when they are hungry and less fastidious about the grasses they eat. Fortunately there is a method by which the stock can in a great degree be prevented from touching this weed, viz. by making the sheep breathe for some time the smoke of the burning plant, and so creating in them a nausea for it. The practical experience of the writer can make him vouch for this fact, though the efficacy of the treatment has been frequently questioned by breeders, who have looked upon it as a

gaucho's remedy—the faith cure of the ignorant peasant. Stock which is being removed from a district where *romerillo* is unknown to one where that weed flourishes, should be fumigated immediately upon entering the *romerillo* country. The best time for doing this is in the early morning, when the sheep have ruminated and digested their previous day's food. They should be mobbed together, and a series of heaps of the green newly-cut weed should be piled to the windward of them. Care should be taken that a sufficient quantity has been cut, for the smoking process lasts fully an hour in the open air. The piles are ignited and give forth a dense and pungent smoke, the characteristic smell of the plant being very powerful. The sheep must be rounded up and kept face to face with the cloud of smoke issuing from the line of fire. In twenty minutes they will all commence to cough and sneeze, but it is well to give them a thorough dose. In an hour's time, with a fair wind blowing, it is probable that every sheep will have made an intimate acquaintance with the smell of the plant, and will take care to avoid it when grazing. So peculiar is the odour of this poison that, once smelt, it will remain for ever in the memory. This fumigation, however much it may be derided by inexperienced breeders, is of unquestionable benefit. It has been the writer's experience to remit over ten troops of sheep, varying in number from 150 to 8000 head, from land where the *romerillo* does not exist to land where it does, and the fumigation when

properly carried out has always been efficacious. Upon one occasion, 13,000 valuable sheep were remitted to a district where *romerillo* abounds in great quantities, from land where the plant is wholly unknown. These sheep were fumigated, and the mortality from eating *romerillo* did not exceed 3 per cent. Upon another occasion 2000 were remitted from the same sheep-run to the same locality, and were not fumigated: 800 deaths ensued, being 40 per cent. It is indeed only from the conviction engendered by experience that the writer has made this lengthy allusion to the "smoke" treatment.

Romerillo when cut up and macerated, makes an excellent blister, and is greatly employed for this purpose by gaucho horse-doctors. Used with discretion it serves as a diuretic, and its medicinal properties will some day render it a useful simple in the hands of the intelligent breeders.

Nierembergia hippomanica, or *flicautis*; vulg. Sp. *chuchu*.—This weed belongs to the *Solanea* family, and is much more fatal in its effects than the *romerillo*. It is a small modest plant with spreading leaves of a light green colour above, and whitish-green colour below, and bears a white star-like flower. Death invariably follows the eating of this poisonous plant. Fortunately it is very scarce, and is only to be found in certain poorly pastured and hilly parts of the country. In remitting droves of stock, the best plan is to hasten them over the land where the *chuchu* is known to exist, without giving the animals

time to graze upon the spot. The word *chuchu*, which is descriptive of ague, has been applied to this plant in imitation of the effect it produces upon its victims.

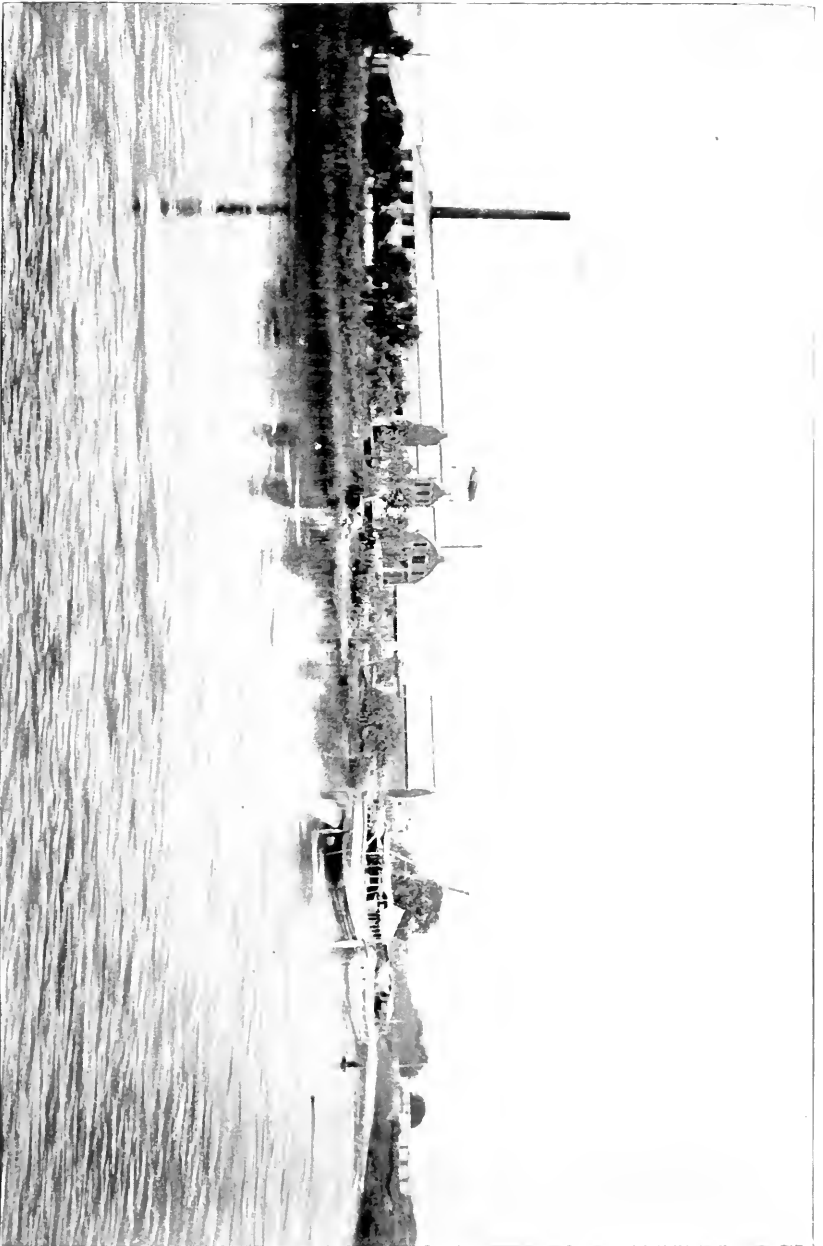
Cestrusa Parqui (vulg. Sp. *Duraznillo negro*), and *Solanum elaeagnifolium* (vulg. Sp. *Revienta caballo*), and other plants of the same family occasionally do damage in stock. They are only to be found in the sandy and woody vicinity of the coast-line of the River Plate, and where the *bizcacha* or prairie dog has upturned the soil. They are not necessarily fatal in their effects, and where death has been observed to ensue from eating them, it is a safe plan to retain the flock in the yards until the moisture is well off the ground before allowing it to run afield and depasture—for these plants are only fatal after a fall of rain overnight, or when eaten before the sheep have been watered. They are scarcely deserving of notice in this chapter, so limited is the harm they do. And it may be said of all the Provinces of the River Plate, that they are as poor in obnoxious weeds as they are rich in all kinds of nutritious grasses.

CHAPTER VI

EXIT FOR SURPLUS STOCK AND FOR PRODUCE—THE
MEAT-FREEZING TRADE—LOCAL WOOL AND OTHER
PRODUCE MARKETS—MEANS OF REMISSION: RAIL-
WAYS AND ROADS—CANALISATION AND SURFACE
DRAINING

To the producer in all parts of the globe, the question of how to dispose of the fruits of his labour is one of first importance. That country is most felicitous in commerce which can combine a maximum facility in producing necessary supply with a facile and economical communication with the centres of demand. In this respect the Argentine Republic stands pre-eminent; and whilst on the one hand its fertile properties guarantee a most plentiful and secure harvest of raw material, so on the other its geographical position and physical contour place it closely in touch with the consuming world. In a preceding chapter it has been shown at what cheap rates mutton and wool can be grown; it remains for this chapter to prove how the producer can find a market for his wares.

The Meat-freezing Trade.—In the whole annals of



THE SANSINENA MEAT-FREEZING ESTABLISHMENT.

In face page 158.



the history of sheep in the great pastoral colonies of the world, no innovation has so completely revolutionised and furthered the interests of the sheep-breeding industry as the introduction of the freezing of mutton for remission to Europe, and sale there. Looking back upon the days before this exit for the sale of surplus bleaters was discovered, it seems impossible that the breeder of sheep could have looked forward to the multiplication of his flocks with anything but the gloomiest forebodings for his future prospects. By 1882 a fall in the price of tallow had become gravely accentuated, and the value of sheep-skins had also taken a downward road. Local consumption answered for but a small fraction of the annual increase, and although there still remained—as there remains to-day—great virgin tracts ready to be turned into pasture land, the breeder had but a poor prospect of making a sufficient income to enable him to enlarge his territorial possessions. Just as in 1843 the industry of boiling down sheep for their tallow and skins solved a difficult economical problem, and sent up the value of sheep, so in 1883 when produce had already fallen greatly, and the horizon of the breeder was at its gloomiest, the freezing trade supplied the want, and found a market for the comparatively valueless wethers. Sheep until then were bred for little else than the value of their wool: now, the question of mutton has made the breeder as scrupulous about the fattening and early maturing

qualities of his stock as he is about the length and fineness of the staple of the fleece.

By 1883 Messrs. Drabble Brothers in Campaña, and Messrs. S. G. Sansinena and Company of Barracas had completed their buildings, laid in their machinery, and started to freeze mutton for shipment to Europe. In that year the number of carcasses sent home to the Old World, principally to England, barely passed 17,000. The writer visited the establishment of Messrs. Drabble that year, and can well remember the imposing and novel sight the freezing-rooms offered, with their long rows of sheep's carcasses, swathed in spotlessly clean linen as in their winding sheets, and disappearing in the dim perspective of the snow-covered chamber. Since that date the trade has assumed titanic proportions, and one single freezing company exports more in a fortnight than did the whole trade during the twelve months of that year. Improvements have brought the business to such a nice perfection to-day, that the frozen carcasses have an appearance of cleanliness and wholesomeness for which one might search in vain through all the butchers' shops in Buenos Aires. There now exist no less than five immense establishments in the Argentine Republic for the freezing of mutton, capable of exporting up to 3,000,000 carcasses per annum. These are:—

The Sansinena Company.

Nelson's New River Plate Meat Company.

The River Plate Fresh Meat Company.

The Highland Scot Canning Company.
Messrs. John O'Connor and Company.

In 1891 the number of carcases exported from the Argentine reached 1,200,000, this number being more than one-third of the total number of carcases frozen annually in the world, and representing 6 per cent of the total annual consumption of the United Kingdom of Britain. In 1892 the following was the exportation of frozen mutton :—

Sansinena	408,688
Nelson's New River Plate Meat Company, Limited .	450,444
The River Plate Fresh Meat Company, Limited .	345,190
Messrs. O'Connor and Company	90,022
	1,294,344

These figures, which probably in another decade will read as nought, are already sufficiently imposing to justify the Argentine breeder in entertaining the most sanguine expectations as to the future.

The Republic has in its favour several advantages to place it in the van of the mutton-exporting trade. The first of these is the proximity it has to the European market, an advantage which should always serve it in good stead in competing with Australasia. Secondly, it has the special conditions of soil and climate for the production of mutton. Thirdly, the vast area of sheep country which it possesses and the exceeding facilities afforded to the breeder who can grow mutton at a cheaper rate than in any

other pastoral country, and yet sell it at prices remunerative to himself. The country has therefore some claim to consider herself the future meat producer for over-crowded Europe.

Argentine mutton is steadily obtaining favour with the home buyer, and the following extracts, taken from a most interesting price table and review prepared by Messrs. W. Weddel and Co., will serve to show the present state of the trade. We find that during the by-past six years, Argentine mutton has fallen from $4\frac{1}{2}$ d. in 1886 down to $3\frac{1}{2}$ d. in 1891, a fall of 1d. per lb. Prime New Zealand mutton has fallen $\frac{3}{4}$ d. per lb. in the same period, viz. from 5d. to $4\frac{1}{4}$ d. On the other hand the importation of carcasses has been nearly trebled during this time, viz. from 1,187,547 in 1886 to 3,323,821 in 1891. The number of carcasses imported into the United Kingdom from the Argentine, which in 1883 barely passed 17,000, has now ascended to 1,073,525 in 1891. In addition to this there are over 100,000 carcasses exported to France from the River Plate. Messrs. Weddel and Co. make the following important remarks with respect to the quality of frozen mutton:—"For several months past, the quotation for best River Plate mutton has exceeded by $\frac{1}{4}$ d. per lb. the price of New Zealand merino mutton. This overlapping of values leads to great confusion in the mind of consumers, who are now often unable to decide whether New Zealand or River Plate mutton is the better

class of meat. There has been a distinct improvement in the character of the sheep imported from the River Plate during the year 1891, as compared with the two preceding years. This was only what was expected in a favourable season, the steps taken prior to 1889 with a view to improving the breed of many of the largest flocks in the country having naturally resulted in an all-round advance in respect of average weight per carcase and quality of mutton." They go on to say in conclusion:—"Frozen mutton importations now represent from 15 to 20 per cent of the total consumption of mutton in the United Kingdom. Having regard to the prejudice with which frozen mutton was viewed when first introduced into this country, the rapid development of the trade to its present important dimensions is worthy of being specially noted alike by producers in Australasia and South America, and by British farmers and consumers."

The reason why Argentine mutton averages an inferior price to that of New Zealand has a three-fold explanation. In the first place, New Zealand possesses to-day a mutton-producing breed superior to that grown in the Plate. In the second, the New Zealander feeds his stock during the winter time with extra forage, whilst in the Argentine the sheep are allowed to graze upon the same bare pampa during the dead season. The result of this is that the New Zealander produces an even well-grown carcase, whilst there is sent home from the

Plate one upon which a hasty covering of fat has been put during the spring months of the year. The difference between the two carcasses will readily be noted by any one who cares to pay a visit to Smithfield. Thirdly, the freezer in New Zealand freezes the mutton on account of the breeder, and in the Argentine the freezer buys from the breeder. The disadvantage of the latter system, so long as the breeder has no knowledge of the requirements of the market, is apparent. The New Zealand breeder selects his wethers with care, rejecting any which will give an inferior weight, or which are insufficiently fattened for the butcher. He remits them in small droves to the freezing establishments, and takes every care that they shall arrive in perfect order. The Argentine breeder, on the other hand, makes a contract with the representative of the freezer to sell a given number, and the latter binds himself to remove them within a certain date. The breeder endeavours to sell the greatest number possible, and it is easily comprehended that the buyer who selects from a farm carrying anything between 10,000 and 100,000 must perforce remove many wethers utterly unfit for the meat market. The freezer has probably extensive paddocks, but he cannot fatten up the great quantity of store stock which arrives together with the fat wethers; they must alike go to the butcher's knife, and so the Argentine mutton which comes to the European consumer is of inferior quality

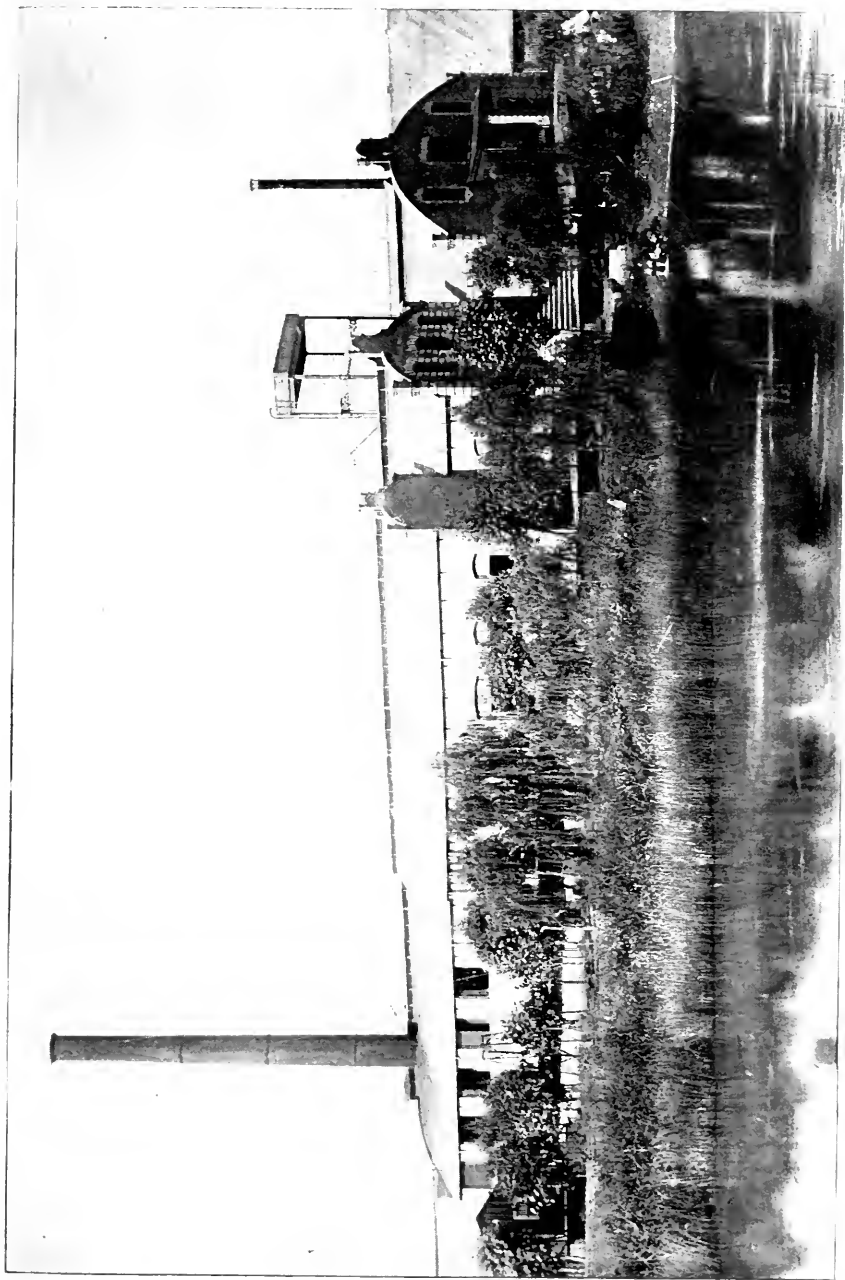
and more uneven than that exported from New Zealand.

Nevertheless the conversion of the freezer into a mere commission-agent is not the most felicitous solution of the frozen-mutton question. There must exist some intelligent observation of the market to determine when to remit supply and when to withhold it. The breeder is not in a position to do this, and the individual effect of his own produce would not materially influence the price list either way. The freezer should assuredly be an interested party. The best system, therefore, and one already in some use in the Argentine, is to establish a scale of prices proportionate to the dead-weight return of the sheep sent in by the breeder. This would alike stimulate the sheep-raiser to turn out wethers of an even weight and quality, and secure to the freezer remunerative prices in the home market. It rests with the breeder to study the matter more closely, and have a care that no wether shall leave his run which does not reach the necessary weight and is not in the condition to fit it for the butcher's knife. In a previous chapter I have pointed out how the breeder should commence an inspection of his flocks immediately after shearing, and from time to time select those wethers he finds in sufficiently good order to remit to the freezer. He can go further. He can have a special paddock for the fattening of his wethers, and draft them from thence to the market. And he will find that in every step he

takes towards improving the present stupid method of selling, he will be gladly met half-way by the freezer.

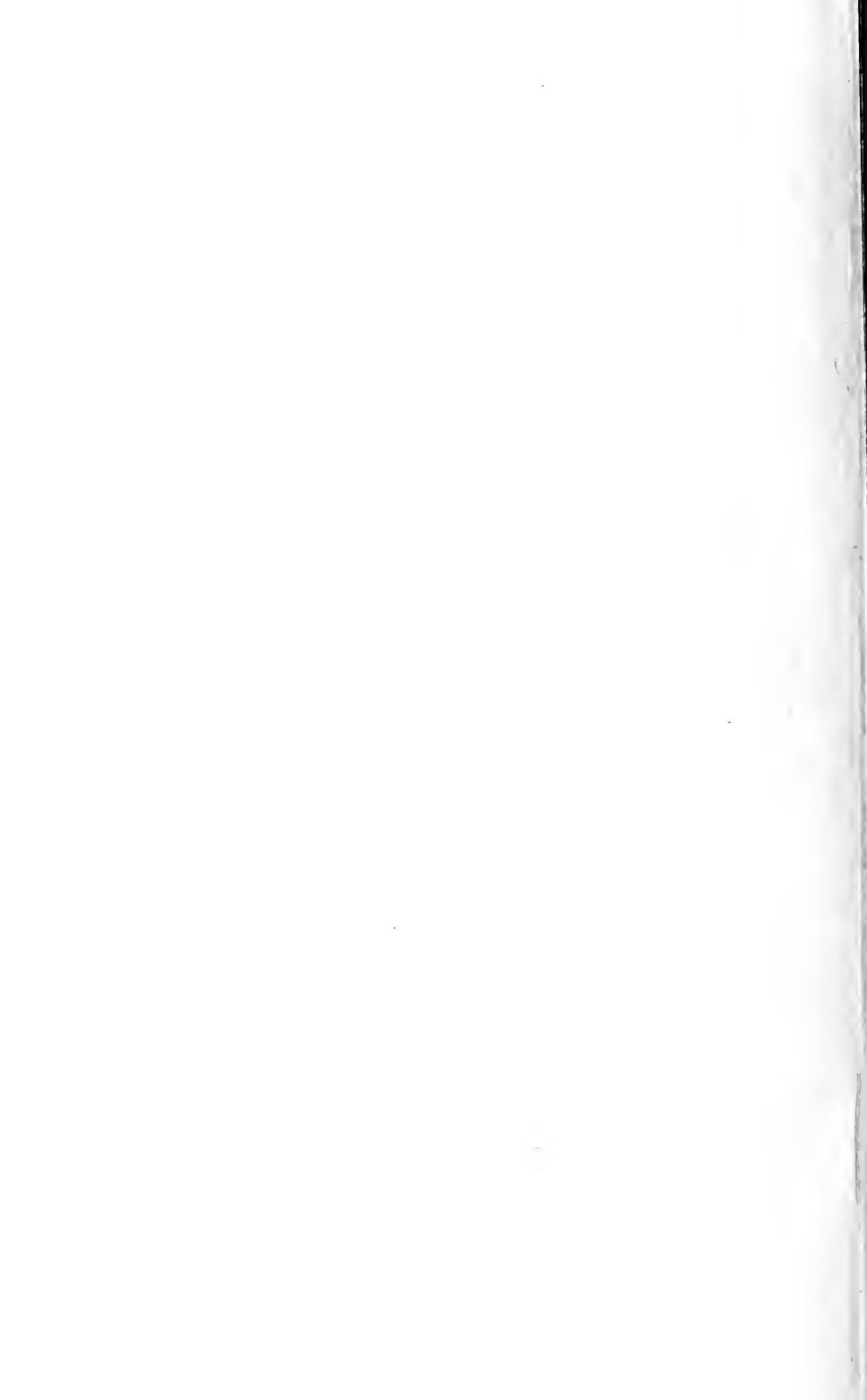
The mutton - freezing process is one of great interest, and a visit to any of the principal establishments cannot fail to impress the visitor with the skilful organisation and care of detail to be noted in every department, from the killing yards to the shipment of carcasses for Europe. Messrs. Sansinena's great killing place on the outskirts of the city of Buenos Aires, and conveniently situated on the banks of the Riacho, a navigable river connected with the port and harbour of the city, has provided one or two illustrations for this chapter.

The sheep are introduced from the sale and receiving yards to large pens under roof. Here are slaughtered those destined for the local market, the number daily disposed of in this manner amounting to about 400. Those selected for the frozen trade, which are generally superior to those for local consumption, are driven up to the far end of the yard, where the preparations for slaughtering are more elaborate. The floor is of concrete, and water is constantly being played over it. The sheep, whose death is instantaneously occasioned by the skilled thrust of the butcher's knife, is laid on a trestle, or board-covered wheelbarrow. Here the skin is partially removed, viz. at the legs and around the head. The body is then suspended on hooks and the skin entirely removed by another man, who



THE SANSINENA MEAT-FREEZING ESTABLISHMENT VIEW FROM THE RIACHO.

The Sanjo people, 1914.



also disembowels the carcase, takes off the head and trotters, and ties the forearms up with twine to give the body that neat trussed-up appearance so necessary for the home markets. Up to 1700 can be slaughtered for the freezing trade per diem, making with those destined for local consumption, a turn-over of 2100 in all.

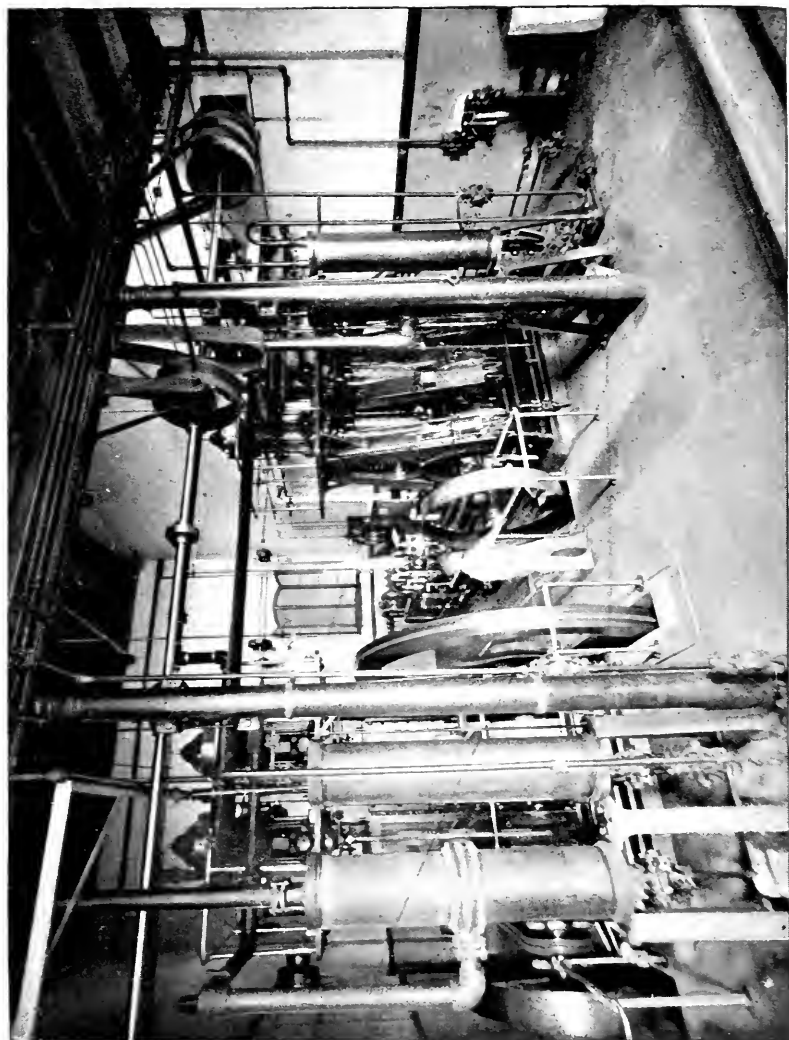
To follow the carcase first. It is conveyed to the scales and weighed, being sorted according to its weight. It is then hung up in a cooling-room in order to be chilled, and left there until five o'clock in the afternoon. From thence it is hoisted by means of an ingenious elevator to the freezing-chambers, where, robed in its clean linen cloth, it hangs for a period of not less than forty-eight hours in the dark frost-covered vaults. Before it is placed in the freezing-chamber it is weighed again; and still once more before shipment, making three different weighings in all. The capacity of the freezing-chambers amounts to 60,000 carcases at one time.

The freezing is done by an eighty (nominal) horse-power machine, the system being that of ammonia. Another engine of the same capacity is at present being introduced.

The bowels and blood are run through drains, and by means of siphons the blood is run off and wasted. This is at present the only part of the animal which is not utilised by the company; but experiments are being made at the present time to find employment for this matter.

The intestines have all particles of grease removed from them, and are cleaned and sold to make sausage skins and guitar strings. The head, odd scraps of fat, paunch, and general offal are boiled down and refined, and the tallow is sold for exportation. The kidneys and tongues are sent home in a frozen state.

The kidney fat and fat robing of the entrails is put through an ingenious and remunerative process. While still hot, it is placed in large iron tanks, where a constant play of water soon renders it stiff. It is then broken up by machinery, rendered down and refined, until at last it comes out a fine yellow mass not unlike a *puree* of potatoes, and as pure and sweet as butter. It is removed to a warm room, placed in clean napkins, and subjected to hydraulic pressure. As grease becomes liquid at a temperature of 35° C., and tallow remains solid up to a temperature of 52° C., the temperature of the press-room is kept at 40° C. The result of this is that the grease runs off the press in a liquid state, and the tallow remains still solid in the linen napkins. The grease, which has by this process been brought to an extreme of refinement, is put up in tins and sold for cooking purposes. It is termed "Oleo Palmatina," and the demand for it is greatly in excess of the supply. The tallow, which is of a superior quality to that obtained from the head and offal, is sold apart, generally for warm countries, where it is mixed with the commoner tallow to make candles. As this tallow will not melt at a lower temperature than say 45° C., it is in great

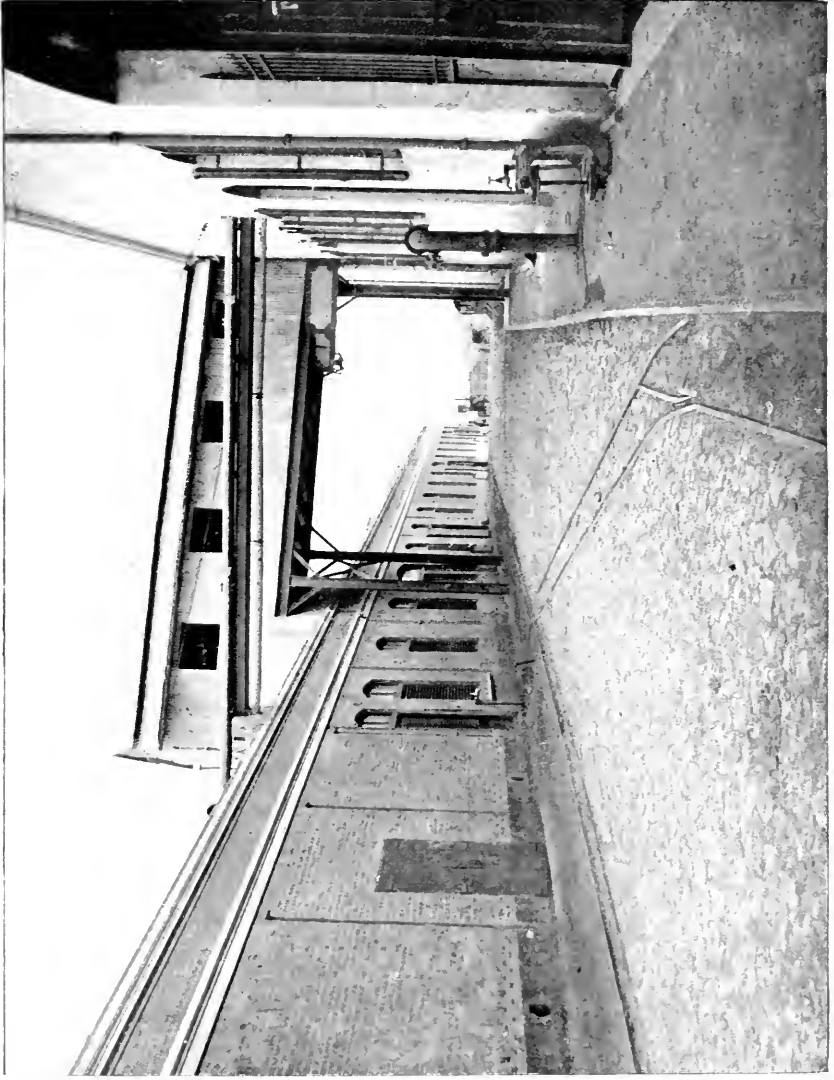


THE SANSINENA MEAT-FREEZING ESTABLISHMENT ENGINE-ROOM.

To face page 108.







INTERIOR OF THE SANSINENA MEAT-FREEZING ESTABLISHMENT

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demand in those countries where the climate is an extremely hot one. Its value is about 15 per cent greater than that of ordinary refined tallow.

Thus every portion of the sheep is utilised, with the exception of the blood. And it is probable that even for this there will shortly be found a profitable employment.

In the smaller freezing stores the curious visitor will see all manner of dainties—partridges, asparagus, fish, sucking-pig, and what not. These little branch industries are by no means unimportant; and such items are not only largely employed in the commissariat of passenger ships, but also have a ready exit in Europe, where they arrive at a period when they are out of season in the Old World.

Messrs. Drabble Brothers, John Nelson and Co., O'Connor and Co., and others, have also large establishments for freezing mutton, more or less upon the same system as Messrs. Sansinena.

There has recently been established in the vicinity of the town of Quilmes, about twenty miles from the city of Buenos Aires, an extensive industry for canning and tinning both beef and mutton. This enterprise, entitled the Highland Scot Tin Canning Company, is prepared to exploit the stock of the Argentine upon an extensive scale. In addition to the elaboration of 1000 and upwards head of cattle per diem, the factory can turn over 2000 head of sheep daily, freezing those carcasses most convenient for exportation in a frozen state, and canning the

mutton of undersized and inferior breeds of bleaters. This industry is of great moment to the stockmaster, for it provides him with a market at unseasonable times, when a threatened drought or flood makes it necessary for him to dispose of a great number of his stock in little space of time.

The breeder has therefore a most promising outlook for the disposal of his surplus increase, the present demand of the combined frozen, live-stock for importation, and local consumption markets amounting to about 4,500,000 head of sheep per annum, or say 6 per cent of the total stock of muttons at present existing in the Republic. If the breeder has a care to continue the improvement of the quality and condition of his butcher stock, he has every right to look forward to a bettering of prices and a wider demand for his wethers.

Local Wool Markets.—The greater part of the produce of sheep in the Argentine is sold locally. For the purchase of the wool nearly all the great manufacturing firms of Europe have their representatives in the River Plate. Some breeders bale their wool at the station and remit it for sale in the London, Antwerp, and Liverpool markets; but this system is limited to a handful of sheep-owners who have attained some notoriety for their wool brands at home.

There exist at present in the city of Buenos Aires three large wool markets where the sale of that produce is daily conducted. These are:—First, the

south or *Constitucion* Market, situated at the terminus of the Great Southern Railway, and which is chiefly for the sale of produce coming from the south of the Republic; second, the north or *Once de Setiembre* Market, situated at the terminus of the Western Railway, and which is for the sale of produce coming from the north of the country. And third, the *Central* Market, a colossal building situated in the heart of the shipping district, viz. at the "Boca."

The *Constitucion* Market consists of a titanic building annexed to the railway terminal system of the Great Southern Railway Company. The shed is well lighted, the whole of the roof being of glass. There are altogether two tiers or storeys, access from one to another being gained by frequent staircases. Through the centre there runs a double line of rails for the lading and unlading of produce. The wool waggons are manipulated by hydraulic force, and the same motive power is employed for the cranes and other appliances. Vast as is the extent of this market, it has been deemed insufficient for the requirements of the producer, and an annexe has been recently constructed. This also is already overflowed with produce. I am indebted to the courtesy of the chief of the engineering department of the Great Southern Railway Company for the following figures, which give the dimensions of the two great sheds:—

Inwards Goods Shed.

Total area occupied by building . . .	101,826	square feet.
Area of upper floor (excluding stairs) . .	71,704	„ „
Area of ground floor (excluding columns)	71,845	„ „

Temporary Wool Shed or Annexe.

Total area occupied by building . . .	50,975	square feet.
Area of upper floor (excluding stairs) . .	37,336	„ „
Area of ground floor (excluding columns)	37,631	„ „

It will be seen by the above that the wool shed, together with the annexe, afford no less than five acres of superficial accommodation for the exhibition of produce for sale.

The north or *Once de Setiembre* Market is composed of three sheds, with a total area of superficial accommodation amounting to 118,000 square feet, or say $2\frac{3}{4}$ acres. The third of these sheds is still in course of construction. Here are sold most of the wools from the north, which, owing to the nature of the soil and climate, are heavier and more full of earth, dust, etc., than those of the south. Attached to this market there is an association of brokers, termed the *Sala del Once de Setiembre*, where the leading brokers meet once a week, and which is open at all times to the visitor, who will find a most valuable collection of samples of produce and a useful collection of reference books. The foundation of this "Sala" is due to Don Carlos Lix Klett, one of the most laborious and meritorious workers in the field

of Argentine produce. The association publishes a weekly gazette giving quotations for all the current prices of produce, and data bearing upon the national commerce.

The Central Market.—In consideration of the distance of the two produce markets already mentioned, both of which are inconveniently removed from the shipping centre; having in account the somewhat cumbersome method, rendered necessary by this distance from the port, of baling and carting the produce through almost the whole length of the city for shipment; and further, recognising the incongruity in that Railway Companies, whose mission is to facilitate the traffic and remission of produce, should provide a bazaar for the disposal of such merchandise: a scheme was projected to form a third market more at hand for the shipping, with a view to centralising the produce from all parts of the Republic to one central spot. This proposal found favour with the public, and in 1886 a Company was formed with a capital of 3,000,000 gold dollars. This Company acquired a convenient site on the south bank of the Riachuelo, a creek artificially enlarged and deepened, and which runs through the shipping district of the city, viz. through the Boca and Barracas. The cost of the land acquired for the market and for the necessary landing-stages amounted to the sum of 1,490,424 gold dollars. A debenture loan of £300,000 was successfully negotiated in London. The total first estimate for construction was 2,160,000 gold

dollars, a sum afterwards exceeded through unforeseen contingencies.

The building was practically finished, and the railway connections were established, by the 20th of May 1890; from which date produce began to pour into the market. There still remained portions of the work undone, which have subsequently been completed.

The Central Market is an imposing edifice. Its walls are of brick, and the roof, which is the most extensive one in the world, is of iron, with innumerable glass cupolas sufficient to fill the whole space underneath with light. This roof is supported by graceful iron columns. The building comprises nine sections or sheds, without divisionary walls, so that one can walk from one extreme to the other of the market. The ground floor is sufficiently elevated to admit of carts and railway waggons loading and unloading on the level. There are two tiers or storeys, the upper one being supported by pillars without intercepting the skylight from the ground floor. The market is supplied with seventy hydraulic cranes for handling the produce. From the landing wharfs ships can be loaded at the rate of 10,000 bags of grain per diem per ship.

The entries of produce since the opening of the market until the 30th of June 1892 are as follows:—

1890	.	20th May to 30th June	.	.	6,632 tons.
1890	.	1st July to 31st December	.	.	48,333 „
1891	.	1st Jan. to 30th June	.	.	35,285 „

1891 .	1st July to 31st December .	30,023 tons.
1892 .	1st Jan. to 30th June .	63,175 „

The falling off in entries in the second half of 1891 (the grain season) is explained by the fact that there had been a delay in sending in the crops, which will make the entries for the second half of 1892 proportionately larger.

The founding of this market has taken place at an unfortunate epoch, when, owing to the political disturbances and financial difficulties of the country, enterprises of this nature felt upon the one hand the restrictions arising from a monetary crisis, and on the other the stagnation of local trade. The position of this market affords many advantages of which neither the *Constitucion* nor the *Once de Setiembre* can boast. But it is conjectural if the Company will attain its object in making it the sole market of the city of Buenos Aires; and the convenience of such an arrangement is open to debate. Many interests militate in this question. But, independently of such a consummation, the Central Market should become the depot of a sufficient quantity of produce to render its institution a financially successful one, particularly when one remembers the annually-increasing production of wool, grain, and other native industries of the country.

There is a wool market of considerable importance springing up in the town of Bahia Blanca, itself a rising centre of commerce and provided with a sea-port of easy access for ships drawing up to 22 feet.

This town will some day govern a very large area of pastoral land, and the wool market there is destined to increase in proportion to the stocking-up of the interior.

Rosario, a town situated in the Province of Santa Fé, to the north of Buenos Aires, and which at present holds the position of the third principal shipping port of the Argentine Republic, also boasts a wool market of considerable activity. This port serves as an outlet to the produce grown in the north of the country.

The suggestion of establishing produce-receiving sheds at various points on the trunk railways is one worthy of consideration. The wool season commences toward the end of October and lasts until the middle of December. During this period about 100,000 tons of wool are ready for sale, remission, and transport. It would be impossible for a Railway Company to supply rolling stock for this demand, as, during the remainder of the year, the traffic of the country would not justify such an extensive plant. But at present nearly every local station is glutted with produce for a certain period of the year. To supply great receiving centres, planned upon the same system as the grain elevators of the United States, would be a measure equally beneficial to the producer and the remitting agent. But the question of the proportion of the Argentine produce to the present medium of remission and export threatens to lead the writer to a polemic which it does not lie within the present limits of this work to sustain.

The produce upon arrival at the market is deposited in a heap, with the name of the broker to whom it is consigned written on a ticket affixed to the lot, and giving other details with regard to the procedure of the consignment, weight of the parcel, etc. If wool, the whole of the fleeces are piled up on the floor, and can be inspected by the buyer. The broker is in attendance at his place in the market from 6 A.M. until 11 A.M., to receive any offers for his consignments and reject or accept them according to his judgment. It is questionable if this system of sale is as convenient to either buyer or seller as that of publicly-conducted auctions; but on the other hand it would be no easy matter to sell by auction the many heterogeneous lots which come before the buyer, some of them only amounting to four or five thousand pounds in weight, and without the least attempt to grade or classify the wools. Nevertheless sales of wool by public auction have been introduced into Buenos Aires for the first time in December 1892. But these sales savour somewhat of Latin impetuosity, and the prices obtained in them bear no relation to the current value of the produce offered. Until the custom of grading wool obtains general use, it is of little gain to the breeder to class his wools for the Buenos Aires markets; but it is to be hoped that such a method will be introduced as the sheep-breeding industry advances. It will certainly guarantee a more dependable price for the producer, and the buyer will be able to make his purchases with more confidence

when he finds the lots offered to him for sale of a more or less even character. As in the mutton trade, it is not left to one party only to improve upon the system of negotiation; both buyer and seller must go out of their way and meet one another's views. The present system is illustrative of the haphazard way in which everything connected with the sheep-breeding trade has been, and is even now, conducted—generalising the business and selling the fat with the lean, if I may use the expression. The breeder must take the first step, and, by a nice discrimination in his produce, a division of the bad from the good, a classification of the various qualities of his wares, he will encourage the buyer to show in the improved price he offers his appreciation of the change in procedure. And those wools most in demand in the market will be more easily distinguished by the figure paid for them, and assist the breeder to ascertain what part of his produce fetches the highest price—a knowledge he cannot possibly acquire if he throws all his wares into one common heap.

Means of transport; Railways and Roads.—A glance at the accompanying map will show how well the country is supplied at the present time with railways to convey the produce to the market. In no district is the sheep-breeder far removed from the iron road, and the partly-constructed and projected lines still further promise to provide means to the producer for sending his produce to the centres of export. The extraordinary facility with which



MAP

showing
the RAILWAY SERVICE in the ARGENTINE REPUBLIC

NOTE of RAILWAYS

--- Line of Railway

<p>① Andino Railway</p> <p>② Argentine Air Western Railway</p> <p>③ Argentine N Eastern Railway</p> <p>④ Bahia Blanca N Western Rwy</p> <p>⑤ B's Aires & Escondida Railway</p> <p>⑥ B's Aires & Southern Railway</p> <p>⑦ B's Aires & Pacific Railway</p> <p>⑧ B's Aires & Rosario Railway</p> <p>⑨ Central Argentine Railway</p> <p>⑩ Central Eastern River Railway</p> <p>⑪ Central Northern Railway</p> <p>⑫ Chumbicha & Galmarera Rwy</p> <p>⑬</p> <p>⑭</p> <p>⑮</p> <p>⑯</p> <p>⑰</p> <p>⑱</p> <p>⑳</p> <p>㉑</p> <p>㉒</p>	<p>㉓ Cordoba & Central Railway</p> <p>㉔ Cordoba & Rosario Railway</p> <p>㉕ Cordoba & North W Railway</p> <p>㉖ East Argentine Railway</p> <p>㉗ North Western Argentine Rwy</p> <p>㉘ West of Buenos Aires Railway</p> <p>㉙ Santa Fe & Cordoba & South Railway</p> <p>㉚ Santa Fe & Reconquista Railway</p> <p>㉛ Tucuman Railway</p> <p>㉜ Villa Maria & Rosario Railway</p> <p>㉝ West of Santa Fe Railway</p> <p>㉞ Santa Fe & Colonias Railway</p> <p>㉟</p> <p>㊱</p> <p>㊲</p> <p>㊳</p> <p>㊴</p> <p>㊵</p> <p>㊶</p> <p>㊷</p> <p>㊸</p> <p>㊹</p> <p>㊺</p> <p>㊻</p> <p>㊼</p> <p>㊽</p> <p>㊾</p> <p>㊿</p>
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--- National from *Trinidad* to *Palermo* Railway

railways can be constructed in this country is one of the chief inducements to develop them still further. At a minimum of cost, not exceeding £2400 per kilometre of one thousand metres, railways can be constructed to traverse a country rich enough to supply ample traffic returns. The colonist may rest assured that sooner or later a railway will be constructed conveniently near his run; and the financier can feel confident that whatever investments he may have made in railways going through the pastoral and agricultural districts of the country, they will give him a golden return, even if through a too premature construction the enterprise does not at the present time give any dividend.

The tariff rates of the principal railways, for freight of produce and live stock, are here appended, giving the scale of prices as in the month of December 1892.

Buenos Aires and Rosario Railway.

The charges become proportionately less in relation to the distance the produce is railed.

There is a percentage charged on the gold tariff which may be roughly taken at 100 per cent less than the current rate of the gold premium. The freights quoted here are those of the gold base upon which the Company's tariff is estimated.

AVERAGE TABLES.

Wool and Sheep-skins, per 1000 kilos, say per ton.

	Distance in miles.	Charge per ton.	Freight per ton per mile.
San Pedro to Buenos Aires .	106	28s.	3 $\frac{1}{8}$ d.
San Nicolas " " .	147	32s.	2 $\frac{5}{8}$ d.
Rosario " " .	188	36s.	2 $\frac{3}{8}$ d.
Average cost per ton per mile, 2 $\frac{3}{4}$ d.			

Live Stock per waggon (of two floors), say 6 tons carrying 90 head.

	Distance in miles.	Charge per waggon.	Freight per 100 head per mile.
San Pedro to Buenos Aires .	106	72s.	9d.
San Nicolas " " .	147	96s.	8 $\frac{3}{4}$ d.
Rosario " " .	188	120s.	8 $\frac{1}{2}$ d.
Average cost per hundred head per mile, 8 $\frac{3}{4}$ d.			

Great Southern Railway.

The charges become proportionately less in relation to the distance the produce is railed.

The tariff here quoted is on a gold base; the exact current premium on gold is added in making charges in national money.

AVERAGE TABLES.

Wool per 1000 kilos, or say per ton, conducted to market.

	Distance in miles.	Charge per ton.	Freight per ton per mile.
Las Flores to Buenos Aires .	111	41s. 9d.	4 $\frac{1}{8}$ d.
Maipu " "	169	58s. 1d.	4 $\frac{1}{8}$ d.
Juarez " "	259	77s. 8d.	3 $\frac{3}{8}$ d.
Average freight per ton per mile, 4 $\frac{1}{8}$ d.			

Sheep-skins per 1000 kilos, or say per ton.

	Distance in miles.	Charge per ton.	Freight per ton per mile.
Las Flores to Buenos Aires .	111	24s. 9d.	2 $\frac{5}{8}$ d.
Maipu " "	169	32s. 9d.	2 $\frac{3}{8}$ d.
Juarez " "	259	42s. 3d.	2d.
Average freight per ton per mile, 2 $\frac{3}{8}$ d.			

Sheep per double-floored waggon, carrying 90 head.

	Distance in miles.	Charge per waggon.	Freight per 100 head per mile.
Las Flores to Buenos Aires .	111	64s.	7 $\frac{3}{8}$ d.
Maipu " "	169	87s.	6 $\frac{7}{8}$ d.
Juarez " "	259	115s. 6d.	6d.
Average freight per hundred head per mile, 6 $\frac{7}{8}$ d.			

The charges on produce here quoted are those made for conducting the wool and skins to the great

southern wool market in Plaza Constitucion. In the cases where the wool is removed immediately upon arrival in the city station, the charge is from 10 per cent to 15 per cent less; and in cases where the wool is remitted in bales the freight is about 40 per cent less.

At each station there is storage room for the produce awaiting remission, though not unfrequently during the busy season the scarcity of waggons leaves many lots of wool waiting perhaps six weeks or two months before being remitted to the market. The producer can, however, to a certain extent provide against such a contingency by consulting with the local station-master, having his name put down on the list of those remitting produce to town, and seeing that his parcel is ready at the station when his turn comes. It would be impossible for a company to have the supply of waggons to take all the produce at one time, as, in such a case, quite two-thirds of its rolling stock would lie idle the greater part of the year.

Roads.—Of roads there is little to be said. In the pastoral country there are no roads, or the whole country is one road, whichever conception of the state of local means of journeying best tickles the palate of the reader. It would not be an easy matter to make roads in this flat level country, deficient in every class of road metal. Tracks cross the land in many directions, and there is a law establishing the position, width, and number of the gates or apertures in the estancia fences. Where the owner has, for his

own convenience, wired in each side of the track crossing his estate, reducing it to the prescribed width of 20 or 40 metres, as the case may be, traffic is seriously affected by the formation of ruts and mud holes. Here indeed there is a distinct lack of intelligent local administration; and the rise in the value of land, or rather the need of depasturing that land to its fullest extent, has occasioned the formation of many such roads, fenced in on each side, and converted into veritable mud canals in the winter season. The question of how to treat this growing evil is being agitated, and we may look forward at no distant date to new legislation on the matter. The direction, width, exact location, and condition of the principal roads have already been determined and delineated on a carefully-prepared and authorised plan. Iron posts have been erected at every 2500 metres, to indicate their location. Argentine law divides them into three classes:—

- (1) General Roads.
- (2) Municipal Roads.
- (3) Vecinal Roads.

The distinction between these three is chiefly in that the first class, being the most important, has a claim on the national treasury—a claim of no particularly pecuniary advantage in the meantime. Municipal roads are those leading from one town to another. Vecinal roads are those for the local communication between the various estancias, camp-stores,

and rural establishments. But to all practical intent the three divisions may be treated upon one common basis; and not unfrequently the vicinal road is also the municipal and general one. Impossible as it would be to make macadamised roads throughout the length and breadth of the land, it is nevertheless feasible to treat of those parts of the road where low ground and swamp have made the track impassable; and there, by artificial means, provide a causeway for local traffic. If local organisation, combined with special study and administration at headquarters, takes the matter in hand, the roads will not long remain what they are to-day—a discredit to the country.

The removal of the wool from the run to the railway station is generally undertaken by carters, who make a speciality of the business. These men own troops of from four up to ten carts, each cart capable of carrying from two to three tons, and conduct the produce to the station at cheaper prices than the stock-breeder could afford to do it himself. The general charge is about $\frac{1}{2}$ d. per ten kilos per lineal league of three miles.

Before leaving the subject of carting, freight, and sale of produce, it may be of interest to the reader to give a list of all the charges upon wool remitted from an estancia, say 12 miles from a railway station, and the station say 180 miles or 300 kilometres from Buenos Aires. Taking a lot of, say 30 tons, the producer would have the following expenses to deduct from the gross proceeds of the sale:—

Amount carting of 30 tons (say 30,000 kilos, or 65,100 lbs.), to railway station, at 2d. per 10 kilos	£25	0	0	
„ freight to Buenos Aires at 4½d. per ton per mile	92	16	3	
„ “ <i>guia de campaña</i> ,” fiscal and muni- cipal imposts, etc.	11	10	0	
„ unloading, piling, storing, and charges, say	8	0	0	
„ Broker’s commission and guarantee, 3 per cent on gross proceeds	50	3	6	
„ 59,300 lbs. fleece wool at 6½d. . . . .	..			£1606 0 10
„ 5,800 „ bellies and pieces at 2¾d. . . . .	..			66 9 2
	<u>£187</u>	<u>9</u>	<u>9</u>	<u>£1672 10 0</u>

*Expenses, exclusive of brokerage, 8 per cent on gross proceeds,
or say ½d. per lb.*

Canalisation and Surface Draining.—From time to time there has appeared before the public a project of titanic proportions proposing the drainage of the whole of the south-east portion of the Province of Buenos Aires. The undertaking, as it is projected at present, is of very disputable benefit, and represents such an enormous expenditure that the heart of the stoutest speculator quails before it. The cost of this scheme in its entirety is of such a fabulous amount that it may be dismissed without further discussion.

But, within a more limited sphere of action, there is much valuable grazing land in the Province of Buenos Aires, useless to-day owing to its swampy condition, which could be converted into excellent pasture if a little surface draining were introduced. The level of the country does not give a fall sufficient to enable the farmer to drain his land with ease, but he can nevertheless reclaim many acres of

marsh and swamp at little outlay. In certain cases it would be injudicious to drain a low-lying piece of land or lagoon, as it serves in normal seasons to provide water for the stock, and in times of drought there is often food to be found here when the rest of the land has become bare. But again, the existence of the great swampy tracts in the south-east of the Province of Buenos Aires occasions the propagation of the lung-worm and the fluke, and if for no other object than the removal of this danger, such places should be drained as much as possible. Having established one or two main ditches, it is not expensive to run transverse furrows, throwing the earth for 50 yards to one side, and for the next 50 to the other. Such small ditches or furrows should not be more than 200 yards distant from one another, and the nearer the better. There is certainly room in this direction to provide more stock-grazing land in certain parts of the Province, and to enhance the value of the estate so treated.

CHAPTER VII

SOME ARGENTINE ESTANCIAS

IN order to give a practical description of a River Plate stock-breeding estancia, I have consigned to the following pages a few brief sketches of sheep-runs, the owners of which have kindly supplied me with the necessary information. My original intention had been that the number of these should be considerably greater, but in some cases the breeder was too busy to be able to attend to my questions, and in others the data supplied were not sufficiently precise to be dependable. The statements with respect to stock-carrying capacity of land, wool returns, values and prices, have all been verified. It will be observed that many of these estancias have at one time been solely devoted to the breeding of merinos, but that the long-wool is prevailing everywhere, although most of the breeders are wisely retaining their best Rambouillet and Negretti stock, or drafting their fine-wools to the high lands of the interior when such is possible. The present year is perhaps a severe test of the sheep produce. The past winter has been an unseasonable one; mortality in

the flocks has been 50 to 100 per cent in excess of the normal return, and the wool-clip has been a light one. But this at any rate saves the reader from acquiring a too exaggerated view of the prospects of the sheep industry in the River Plate, and he may take the figures quoted as representing the minimum average returns.

In treating of the general sheep of the country the writer has endeavoured to avoid dealing with special stock, fearing to mislead the reader. But in order to obtain reliable data it has been necessary to apply to first-class breeders ; and such people naturally breed good stock. Wherever general averages are quoted, however, these refer to all-round groups, and are exclusive of the returns from rack-fed stud stock and special animals. With these few prefatory remarks the reader is introduced to a description of some of our Argentine estancias, the owners of most of which I leave to speak for themselves.

ESTANCIAS "LOS REMEDIOS" AND "LAS ACACIAS."

Messrs. Olivera Brothers.

This firm, which has for long occupied a foremost rank amongst the Argentine sheep-breeders, has been connected at all times with the introduction of fine Rambouillet and Negretti stock from Europe. The study and research of Don Eduardo Olivera, the head of the firm, his journeys through the great merino-producing centres of France and Germany, the

valuable works he has written on the results of his practical observations, and the successful issue of his labours in establishing a splendid type of Rambouillet peculiar to the Argentine, have earned for him the well-merited distinction of being named Life Honorary President of the Argentine Rural Society.

The history of the Olivera studs dates as far back as 1835, when Don Domingo Olivera, the father of the present owners, acquired a portion of the celebrated Halsay stud. From that date until 1858 the stock was from time to time improved with importations from Hoslitz in Austria. In the year 1858 Messrs. Olivera made an important purchase of tups and ewes from Mr. Heller, of Chezelitz, in Upper Silesia. These Chezelitz sheep were direct descendants from Prince Lichnowsky's celebrated stud at Kuchelna, and were accounted the finest types of their breed at that time existing in Europe in respect to the quality of their wool. In 1875 Don Eduardo Olivera selected some German Negrettis at Mecklenburg, and remitted them to the Argentine to be engrafted on his Chezelitz stock. These had improved in quality upon their original European progenitors, and were remarkable for their healthy physical qualities and abundant fine fleece. Some of the tups gave up to 28 and 30 lbs. of wool. In 1876 the Oliveras sold off their Negretti stud in public auction, and dedicated themselves exclusively to the breeding of Rambouillets.

The origin of the Olivera Rambouillet stock dates back to 1855, when Don Domingo Olivera imported

a number of animals from the Imperial stud in France, and from M. Gilbert's famous breed. In 1868 the blood was renewed with an extensive remission from Wideville, where M. Gilbert's stud farm was situated. The seller, who had contracted a sincere friendship with the Oliveras, father and son, took special care in the selection of these animals, and the result was that the Oliveras acquired some magnificent specimens of Rambouillet. At a later period the Oliveras bought up the whole of the Hardoy and Woodgate Rambouillet stud which had existed for a number of years in the north of the Province of Buenos Aires, and was directly descended from the French Imperial stud.

Dr. Zeballos, in his work on the Argentine sheep studs, gives the following interesting remarks furnished by Messrs. Olivera Brothers:—

“ We have always kept our stock free from the infusion of strange blood. We select the reproducing types from the various families of the same breed, taking care never to allow too close in-breeding, refreshing the blood with first-class animals—the best we have been able to obtain among the principal German and French breeders—without ever losing sight of our primordial object, viz. the combination of a grand fleece with a vigorous body suitable for the production of mutton. We have been thus able to completely modify the type of the Wideville sheep, producing the animal which the public has classified as the *Argentine Rambouillet*, the preservation of

whose type we never neglect. One of our firm (Don Eduardo Olivera) has recently made a journey through France and Germany, the result of which confirms our satisfaction with the type we have created. He has been able, nevertheless, to find in one or two studs sheep of a sufficiently proximate class to serve for refreshing the blood of our own stock, without altering in any respect the purity, antiquity, and constancy in the reproduction of the quality attained by us during the lengthy period of time we have devoted ourselves to the breeding of this class of animal.

“The wool return from the ewes varies from 10 up to 18 lbs., and that of the tups from 20 to 28 lbs.

“The mode of tending the sheep is purely in the open, where they feed on the natural grasses of the land, with a supplementary ration of maize and dry lucern served out to them under roof in cases of exceptionally bad weather. By this system we have been able to produce an animal of hardy constitution, and well able to resist the changeable nature of our climate.

“Every year, previous to the commencement of the rutting season, we subject our tups to a most scrupulous revision, and reject all those which do not correspond in the utmost degree to our requirements, viz. the combination of a *maximum fleece* equally excelling in *quality* and *weight*, with a *good mutton-producing carcass*. The latter has to-day become one of the most important objects in sheep-breeding, having in view the demand of the universal mutton

market ; but we must never lose sight of the fleece, which will always be of more importance to us than to the European breeder, owing to the nature of our markets, the conditions of our soil and climate, and the reduced consuming population of our country."

The breed of sheep produced by Messrs. Olivera Brothers has necessarily made its mark on the general merino stock of the Argentine, the sale of rams every year effected at "Las Acacias" being of first magnitude. The greatest credit is due to them, and especially so to Don Eduardo, for the care, study, and system with which they have conducted the breeding of their type stock. The result of this intelligent management has been to raise the standard of all the general flocks into which the Olivera Rambouillet blood has been introduced, and the improvement of the Argentine merino sheep is due, in a great measure, to them.

ESTANCIA "EL CARMEN."

Dr. Estanislao S. Zeballos.

The owner of "El Carmen," who until recently held a seat in the National Cabinet as Minister of Foreign Affairs, has found time amidst the many cares of so busy a life, to organise an important sheep-breeding establishment, where may be found some of the best blood both in Rambouillet and Lincoln. But the sheep-breeder in the Argentine owes more than this to Dr. Zeballos. In 1887 there appeared the

third volume of his work, *A Description of the Argentine Republic*, which, under the title of *A Través de las Cabañas* (Across the Sheep Studs), treats of the sheep in the Argentine, enumerates the breeds, describes upwards of fifty sheep-farms, and, adding a consensus of opinion taken from these breeders to his own experience—the result of study and observation—formulates what breeds of sheep are best adapted to the country, what goals the breeders should strive to attain, and what errors have been committed in the past history of the Argentine sheep industry. The work is one of first importance, and should be read by every breeder of the River Plate. The author writes an interesting history of the introduction of sheep to the country, the ups and downs in the experience of the early breeders' days, the vicissitudes in the lives of some eminent Argentine flock-masters whose political creed not only exposed them to the confiscation of their possessions but imperilled their lives; and so he leads the reader up to the present time. Dealing at length with the three great families of sheep, viz. the Negretti, Rambouillet, and English long-wool, he discusses the merit of each class. Further chapters are dedicated to the administration of a sheep-farm, diseases in sheep, official action with respect to the industry, and kindred matters. The work is very complete, and will always hold its place as a standard authority upon sheep-breeding in the Argentine.

Dr. Zeballos has been President of the Argentine

Rural Society since 1888. In 1892 he was un-animously re-elected, and continues to occupy the chair to which he does so much honour. In 1890, chiefly thanks to his zeal and activity, there was celebrated in Buenos Aires an International Live Stock and Agricultural Exhibition, the most imposing one of its class ever held on the South American continent.

Dr. Zeballos was also one of the founders and leading members of the Argentine Geographical Society. Though still a young man, his career as a statesman has already been a brilliant one. An eminent traveller, he has given the country some valuable works on the remote districts of the vast Argentine territory. In the lighter paths of literature his name is a familiar one; and in the important field of rural industry he stands in the foremost ranks of those who have raised the standard and conditions of the Argentine's greatest mine of wealth, and well deserves the title of a "worker for his country."

The Carmen estancia carries 12,000 head of sheep, divided into the following breeds :—

Rambouillet	1000 head.
Lincoln	10,000 „
South Down and Oxford Down	1000 „

The Rambouillets include two stud flocks. The first introduction was made in 1883, the origin of the sheep being from Homeyer. In the following year a further importation was made, this time the Imperial

stud of France being the breed selected. Sires have been bought from time to time from France, Germany, and Argentine pure studs. Rams bred in the Zeballos stud give from 18 to 24 lbs. of wool, and their valuable fleece and excellent type find a ready market for them. The prices obtained in the Carmen estancia for tups vary from £6 up to £20 each.

In the foundation of his Lincoln stock Dr. Zeballos has spared no expense, and the best-known flocks in England have furnished animals for the formation of this stud. The first sheep were introduced in 1883, their breeder being Mr. Kirkham of Biscathorpe. To these were added forty ewes purchased from Mr. Dudding,—whose breed of Lincolns has become to-day the most popular in England. More than one prize-winner at the Royal Agricultural Shows of England has been purchased for the Carmen estancia. The first stud is comprised of 250 ewes, all of the above origin. The prices obtained for tups bred in this stud vary from £5 to £20. The second stud is composed of 1200 head, and here too rams are bred for sale, their price varying from £3 to £5 each.

The Down sheep in the Carmen are of an equally important descent. In 1883 Dr. Zeballos bought the first and second prize pens of Oxfordshire Down shearing ewes exhibited in the Royal Agricultural Show in England. With these he imported a valuable ram of the same breed. Having purchased 40 South Down ewes from Mr. Percyra, the owner of the famous Rivadavia stock first imported in 1826,

and to which I have alluded in an earlier part of this book, Dr. Zeballos proceeded to cross these with Oxfordshires. The result has been eminently satisfactory. The pure Oxfordshires, and the South Down and Oxfordshire crosses, are carefully kept apart. Tups are bred in both studs, and the owner finds a ready sale for them, obtaining £20 each for the pure ones. This price is not surprising when one remembers the first-class origin of the stock.

The Carmen estancia is a popular stud-farm with Argentine breeders. Sheep from this place have been successful in all the local live-stock exhibitions. This is due to the discrimination of the owner, who has taken care to purchase all his stock of the very first-class blood, and retain the purity of his studs.

ESTANCIA "LOS JAGUELES."

Mr. Richard Newton.

In providing a few notes upon the three leading figures in the Argentine rural world of to-day, viz. Don Eduardo Olivera, Dr. Don Estanislao S. Zeballos, and Don Ricardo Newton, the writer has special pleasure in speaking of the latter by reason of the ties which existed between the forebears of both families when the sheep-breeding industry in the Argentine was still in its earliest infancy.

Mr. Richard Newton, the grandfather of the present owner of "Los Jagueles," came to the

Argentine in the first years of the Declaration of Independence. His son, whose name was also Richard, followed him in 1819, and entered the house of Messrs. John Gibson and Sons. His natural intelligence and innate love for stock-breeding soon displayed themselves, and in 1822 he was invited to take over the management of the *Monte Grande* estancia, a portion of which was shortly afterwards sold by Mr. John Gibson to Messrs. Robertson Brothers, and became the famous Scotch colony, from the pioneers of which are descended many of the leading Anglo-Argentine breeders of the present time. From being local manager of this estate, Mr. Richard Newton soon rose to the general administration of the firm's estancias. In 1825 he went down to the "Tuyu" to take over the Hidalgo estancia, which is to-day the estancia "Los Yngleses." From here he again moved in 1826 to administer the San Borombón estate, the property of the same firm; and here he remained until 1834, when the Gibson firm liquidated, and he purchased four square leagues (26,688 acres) of the same estancia. The writer has before him a collection of the correspondence exchanged between Mr. Richard Newton and his town friends, which shows how even at that early date he foresaw the future importance of the sheep-breeding industry. In one letter, written in the year 1826, he expresses his regret at being unable to carry out a project for dividing the land into paddocks! It is curious to note that eighteen years later his son,

the present Mr. Richard Newton, accompanied his father on a visit to England, and was beside him when he visited the estate of Earl Fitzwilliam, and saw the first wire fence. The result of this visit was the introduction of wire fences to the Argentine, and the project of 1826 was at last realised. To-day it would be difficult to compute the thousands of miles of wire-fencing existing in the Argentine Republic.

Mr. Newton,—I still speak of the father of the present owner of "Los Jagueles,"—was one of the leaders in the introduction of fine European sheep to improve the quality of the Argentine flocks. In his San Borombón estate he founded merino studs which have served to raise the standard of many thousands of general sheep. In 1866, when the foundation of the Argentine Rural Society was first mooted, he was one of the most active partisans in the cause. The project was carried out, and to-day the portrait of this pioneer in pastoral Argentine graces the general meeting-room of the Society's building in Buenos Aires.

Mr. Richard Newton, his son and the present owner of "Los Jagueles," has proved himself worthy of such a father. On more than one occasion he has occupied the Presidential chair of the Argentine Rural Society. Wherever the cry of rural progress has been raised, he has been in the van. Commissioned by his country to visit other great sheep-breeding lands, he spent nearly a year in studying the wool industry in Australia and New Zealand. On his return he pub-

lished a voluminous work on the subject. Though it is impossible to apply the Australian system of sheep-raising to a country so opposed to its great rival in the nature of its pastures and climate, it is needless to say, nevertheless, that there is much in this work to commend it. I can best illustrate the proof of this by quoting the remark of a Basque sheep-breeder who has been particularly successful in his business, and whose estancia is one of the most model ones it has ever been my privilege to visit. We had been discussing a warmly-disputed question on the matter of crossing one class of sheep with another, and my friend wound up a thoroughly technical peroration on the subject with the following remark, given with all the emphasis of a Euclidean proposition :—“ Y asi dice Don Ricardo Newton en su obra ” (And so says Mr. Richard Newton in his work). Before this eastern colophon, this word of the prophet, “ It is written,” I had perforce to retire.

We are greatly indebted to Mr. Newton for the foundation of the Chascomus bi-annual rural fair. Ten years ago there were only two such fairs in the country. To-day there are more than ten, and their celebration has established a centre in each locality where the breeder can either sell his stock or buy new blood, securing in either case a proper market price. These fairs are veritable schools for the education of the sheep-farmer.

It is needless to say that all of the stock at “ Los Jagueles ” is of first-class origin and good quality.

Like the firm with which Mr. Newton's father was at one time connected, he has shown a Saxon and natural predilection for English sheep. The estancia "Jaqueles" boasts some Lincoln and Lincoln cross flocks of excellent type and valuable properties. Mr. Newton sells his tups and ewes at most of the district fairs, and obtains top prices for his animals. His brothers, sons, and nephews are extensive stock-breeders in various parts of the Province of Buenos Aires, and wherever the Newton family exist the name is esteemed and respected.

ESTANCIA "EL VENADO."

Señor Felipe Senillosa.

Señor Senillosa is one of the Argentine breeders who both by precept and practice has laboured in the field of improving the general breed of the River Plate sheep. His experience entitles the opinions he expresses to great respect, and he proves the logic of his breeding system by placing in the market every year some of the finest Rambouillet and Lincoln classic stock offered for sale. Both at the "Venado" and at "San Felipe"—the property of his brother, Don Pastor Senillosa, and of which I shall treat farther on—the administration is conducted in a model fashion. The "Venado" is well furnished with fields of lucern and maize, commodious stock and general sheds, and the sheep are tended in a manner at once economical and profitable. Don Felipe Senillosa is an active member

of the Argentine Rural Society, and his valuable services have at all times willingly been lent in the cause of the wool industry of the country. He has kindly favoured me with important data of which I shall shortly avail myself, and which are all the more valuable for being in every respect reliable and scrupulously correct.

As in the case of most estancias whose origin is classic, the "Venado" carries to-day both the great families of bleaters, the merino and the long-wool. Though cognisant of the economic value of the Lincoln in the rich low-lying lands of the Province of Buenos Aires, and though obliged to follow the market and introduce what has become the fashionable sheep of the day, it would have been heresy to admit the vigorous long-stapled sheep of the Lincoln wold and fen into the golden-fleeced delicate flocks of the merino. Señor Senillosa still preserves his typical Rambouillet sheep in the "Venado," and of these I shall first treat.

In 1858, when the brothers Senillosa took in hand the administration of their father's estates, the sheep stock consisted principally of *creoles*, with some insignificant strain of merino blood. They proceeded at once to form a merino stud in order to produce sires to better the quality of the general flocks. Until 1868 the breed they adopted was the German Negretti, the foundation of the stud being a purchase of ewes from Señor Stegman, of Saxon origin but crossed from 1854 with imported German Negretti tups. Following with scrupulous care a system of selection,

the stud flock soon acquired an even and high-class character. From 1868, and on until the present date, Señor Senillosa has continued to introduce Rambouillets, purchased both in Europe and in the Argentine studs, including, in 1882, a most important acquisition from the Imperial flock in France, being a tup employed in the French stud for breeding purposes, and which yielded a fleece of 36 pounds weight and pure quality. Señor Senillosa adds to his remarks upon his Rambouillet stock the following:—

“All the pure Rambouillet sheep I now possess are of direct *French* descent from the Imperial or National French stud. These were formerly in great demand here, but are now somewhat neglected, and the sheep called the German Rambouillet is in more request—bearing a less fine and less close fleece, wanting in character, but of a greater volume than the French sort. This change in fashion is erroneous, as the German animal is less precocious, and requires more land to maintain it and render it productive.”

RETURNS FROM RAMBOUILLET.

Wool.

	lbs.	oz.
34 shearling rams, 12 months' wool, av. per head	16	3
First stud flock, average per head. . . .	10	12
Second stud flock, „	8	2
General Rambouillet flocks, „	5	14

Ram Sales.

Sold during past season 422 rams at prices as follows:—

Pure Rambouillets	£7 to £30
From second stud	£1 : 10s. to £2

The Lincoln stud dates from 1869, the origin being from Kirkham and other Lincolnshire flocks, and from Mr. John Fair's estancia "El Espartillar" in this country. There now exist in the "Venado" a flock of pure origin composed of 300 head, another larger flock formed by selection, and diverse flocks of Lincoln cross blood. As in Rambouillet, the Senillosas have been remarkably successful in breeding Lincolns, the cause of this being undoubtedly due to their system of selection. The Lincoln rams they annually offer for sale in the various local fairs are, independent of their blood and type, the best prepared sheep placed before the public. It is not surprising therefore to learn that the "Venado" stock have time after time carried away the laurels in competitive exhibitions.

RETURNS FROM LINCOLNS.

Wools.

	lbs.	oz.
First stud flock, average per head	7	8
Second stud flock, „	7	5
Third stud flock, „	6	10
General Lincoln cross flocks, average per head	5	5

Ram Sales.

Sold during past season 296 rams at prices as follows:—

Pure Lincolns	£14 to £25
From second and third studs	£2 : 10s. to £4

The Lincoln stock is maintained throughout the year upon the natural grasses of the "Venado" without any additional forage. The general Rambouillet stock is treated in a like manner; and even the stud

flock is by no means pampered. The ewes when with lamb are allowed a small quantity of chopped lucern and bran, and the young pure Rambouillet lambs are supplied with a moderate ration of the same fodder. This is gradually reduced in the case of the ewe lambs, but the male offspring are rack-fed until of an age for sale.

The "Venado" estancia is situated 120 miles from the city of Buenos Aires, and its area is 19,760 acres (8000 hectares). It is capable of carrying 20,000 head of sheep, 3000 head of cattle, and 300 horses and mares. This is equal to very nearly 2 sheep to the acre. Señor Senillosa informs me :—"It is my custom to keep a reduced number of stock upon the place in order to secure my animals against a possible adverse season. The proportion of cattle to sheep (3000 of the former to 20,000 of the latter) is what I esteem a proper ratio, having in account the quality of the indigenous grasses. Indeed, even in the best lands, I consider it necessary to have a proportionate quantity of either stock. Tending sheep alone upon natural grasses will eventually have a prejudicial effect upon the pasturage; and though the same does not apply to cattle, an estancia limited to the breeding of the latter could scarcely be expected to give a satisfactory return."

Data furnished by Señor Senillosa entitle me to give the following increase and mortality tables :—

Count of stock in 1891	15,655 head
Count of stock in 1892	16,335
Sales during year	2,459
Home consumption during year	1,898
	20,692
Increase	5,037

Being an increase of 32 per cent, or, deducting home consumption, 20 per cent.

Losses from mortality 1,353

Being a mortality of 9 per cent, or, including home consumption, 21 per cent.

The price obtained for the “Venado” wethers last year varies from 8s. 7d. to 10s.

The loss from the bronchial worm in the “Venado” during the past disastrous season has been insignificant, though the parasite was peculiarly virulent in the vicinity of this estancia. Señor Senillosa attributes the small mortality in his flocks to a liberal distribution of rock-salt in all the paddocks.

The “Venado” estancia will figure conspicuously in the wool-department of the Argentine section in the Columbian exposition. The following are the exhibits sent by Señor Senillosa to Chicago :—

- A sample ewe’s fleece from the first Rambouillet Stud.
- Two ” ” second ” ”
- Two ” ” first Lincoln Stud.
- Two sample ram fleeces from the rack-fed Rambouillets.
- Three ” ” paddock-grazed ”
- Three ” ” ” Lincolns.
- Two ” ” ” second stud ”
- One ewe’s fleece ” ” third ” ..
- One hogget’s fleece ” ” ” ” ” ..

“All these samples have been taken from the shearing - boards, and are guaranteed specimens of the class of wool grown in the estancia for the market.”

The information I have briefly supplied, quoted from the manuscript kindly written for me by Don Felipe Senillosa, shows in the precision with which it is given the reliability of its references. The “Venado” estancia is one which does honour to the country in which it flourishes, and the owner is one of the most worthy of the builders of the Argentine nation’s fortune.

ESTANCIA “SAN FELIPE.”

Don Pastor Senillosa.

I have already described at some length the sister estancia “El Venado,” the property of the brother of Don Pastor Senillosa, and as the origin of the Rambouillet stud is the same in both estates, there is no need for me to recur to it again. Suffice it to say that at “San Felipe” the same scrupulous exactitude in breeding and selection obtains as at the “Venado.”

“San Felipe” is situated some 250 miles to the south of the city of Buenos Aires, on the 37° 15' parallel of S. latitude, and distant about 35 miles from the Atlantic sea-board. Its area is composed of 17,263 hectares (42,640 acres) of good land, with three permanent fresh - water lagoons, and a fresh - water stream which traverses the estate diagonally. A

portion of the land which is somewhat low-lying has been surface drained. The natural grasses are of a good quality and include several classes of graminea, trefoil, wild oat, soft thistle, etc.

The estancia is divided by a central fence, and one half is subdivided into seventeen paddocks of various sizes. The following is the carrying capacity of the land :—

Sheep	.	.	.	.	50,000 head
Cattle	.	.	.	.	9,250 „
Horses and mares	.	.	.	.	1,400 „

Equal to 2.40 sheep per acre.

Owing to the recent unfavourable years, and the invasion of the bronchial worm, the sheep stock, which is entirely Rambouillet, has been greatly reduced by mortality.

The head station is one of imposing size, and is composed of twenty-one principal buildings, all constructed of brick and lime. It is surrounded by a handsome wood composed of the white and olive leafed acacias, eucalyptus, Lombardy poplars, willows, elms, oaks, and ashes; the tree which Señor Senillosa finds most useful being the white acacia. All the interior fences upon “San Felipe” are constructed of this timber. There are no less than nine extensive sheds for shearing, rack-feeding, and general purposes. Both lucern and maize are cultivated extensively, but even so the demand of the estancia exceeds the supply, and it is necessary each year to buy large quantities

of the latter provender. It is refreshing to hear of an estate which not only consumes its agricultural produce, but buys that of its neighbours in order to reduce it to its most economical form for exportation to Europe, viz. in the shape of beef, mutton, and wool.

As has already been stated, the only breed of sheep upon the "San Felipe" estancia is Rambouillet. The past wet seasons have not been favourable to this place, and the sheep stock is reduced to-day to 26,000 head. The stud flock is composed of 300 ewes, divided into four sections in order to carry out with more discrimination the practice of selection. A second stud exists, formed from the off-throw of the first stud, which number 1300 head, claiming a direct descent from the French Imperial Flock.

RETURNS.

Wool.

Stud rams bred in Nos. 1 and 2	give from 15 to 26 lbs.
Stud ewes bred in Nos. 1 and 2	give from 8 to 13½ "
Stud No. 2	gives an average of 8·23 lbs.
General flocks give	" 6·29 "

Prices for wool.

Last year's all-round price obtained for the "San Felipe" wools in Buenos Aires was 6d. per lb.

Sales.

Tups bred in Stud No. 1	sell at from £16 to £40 each.
Tups " " 2	" " £2 to £4 each.
Wethers from general flocks	sell at 12s.
Culls " "	7s. to 8s.

As has already been explained, the recent unfavour-

able years have occasioned a decrease in the flocks. Señor Senillosa informs me that previous to 1889 he obtained an annual increase of 35 per cent, including home consumption in this estimate.

“San Felipe” is one of the estancias which will exhibit sample fleeces selected from the general clip of 1892 at the Columbian Exhibition in Chicago. These wools are intended to be illustrative of the general produce of the estancia, and have not been specially selected or prepared for show purposes.

The constancy with which Don Pastor Senillosa has limited himself to the exclusive production of Rambouillets will eventually bring its own reward. Although at present a series of unfavourable years and scant demand have rendered the returns of the place less lucrative than the value of the stock and care in breeding deserve, a change in the tide of affairs will some day set in. Señor Senillosa is experiencing to-day what the Argentine Lincoln breeders came through in the “sixties” and “seventies.” But an over-production of Lincoln will occasion a change of fashion in a few years, and then the purity and class of the “San Felipe” stock will attain for it a first place in the market.

ESTANCIA “NEGRETE.”

The famous old “Carmen” estancia, now the “Negrete,” and the property of Mr. David A. Shennan, is generally looked upon as the model estancia

of the Province of Buenos Aires. A retrospect of its history takes us back to the earliest days of the sheep-breeding industry, for its founder, and for a long time its owner, was none other than Mr. John Hannah, whose name so frequently figures in this work, and to whom we owe in a great measure the perfection of the Argentine merino stud. Every building and every paddock is surrounded with the tradition of the old days of sheep-breeding, and carries the memory back to the epoch when Argentine breeders could be counted on the digits of a man's hands.

The estancia "Negrete" is situated about 80 miles south of the city of Buenos Aires, and about 8 miles from Villanueva station on the Great Southern Railway. Its area is composed of about 27,300 acres, divided into over thirty paddocks, many of which have for divisionary lines handsome belts of acacia, pine, casuarina, pepper, and other trees. The land is chiefly a rich black loam, with a good water supply, some of the paddocks being traversed by a branch of the Salado river. The pastures are chiefly composed of soft grasses, including rye grasses, wild oat, trefoil, etc. Nevertheless the good qualities of the pasture land, and the stock-carrying capacity of the estate, are more due to skilful management and judicious division of animals than to the natural qualities of the soil; so much so that, a few years ago, when the valuation of the land for taxation purposes had been placed at a price which appeared

over-estimated in the eyes of the manager, and he protested before the local jury, the chairman of this worthy body, and an old neighbour in the vicinity, assented at once, and exclaimed, "Certainly, give a rebate. The 'Negrete' is the worst land in the whole department." This is interesting, as it serves to point out what can be done by drainage and capable management.

The stock-carrying capacity of the "Negrete" is as follows :—

Sheep	35,000 head.
Cattle	7,500 „
Horses and Mares	1,800 „

Being the equivalent of 3·12 sheep per acre.

The steading is approached by a stately avenue of eucalyptus trees, probably about the oldest of this species of tree in the country. The yards, sheddings, stables, and labourers' quarters are very extensive and complete. They include large brick buildings for the stud merinos, wool and shearing-sheds, dipping plant and yards—all the latter being on the Australian system. The wool is baled here and remitted direct to London and Liverpool for sale; it is carefully sorted and skirted before going to the press, the latter being a very little practised custom with Argentine wool-growers. There are many hundreds of acres of timber, all planted within the last half-century. The land is greatly ornamented by little clumps and belts of trees placed here and there, giving the landscape an English appearance, and affording shelter everywhere

for the stock. The private dwelling-house is a handsome building of bungalow form, and was constructed by the late Mr. John Hannah. When this country was visited in 1882 by the young sailor princes, the late Duke of Clarence and the Duke of York, they spent a few days at the "Negrete" estancia as the guests of Mr. Shennan.

There are at present on the "Negrete" 35,000 sheep of the following breeds :—

- 1 Negretti stud flock.
- 1 Rambouillet stud flock.
- 3,500 Rambouillet first-class sheep of classic descent.
- 30,000 Leicester sheep.
- 500 Lincoln sheep.
- 1 Leicester and Rambouillet cross flock.

To trace the origin of the Negretti stud we must go back to the "Galpones" and the old Sheridan-Harratt flock. Mr. John Hannah was the administrator of this breeding-farm, and was qualified for the selection of type animals for his own stud. German Negrettis were imported first about 1846 to the "Carmen," or as it is now called, the "Negrete" estancia. In 1853 a new venture was made, in recognition of the general change from superfine wools to the more abundant if coarser fleece of the Rambouillet, and importations of this class of sheep were made from the Imperial stud flock of France. The two breeds were and are kept apart, but the Rambouillet stock has been more generalised; and whilst the Negrettis number only 200 type ewes, the Ram-

bouillets ascend to-day to 3500 head. Vermonts have been imported from North America since 1882, to serve in the Negretti stud. Some of these animals have yielded a fleece of almost fabulous weight. The last introduction is a grand sheep from Pomerania, selected by Mr. Shennan himself, and the fleece of which is of magnificent character and evenness. Rams bred in the Negretti stud yield from 24 up to 30 lbs. of wool, and sell at prices up to £200. Despite the absence of demand for this class of stock, those bred at the "Negrete" still find an eager market. Rams bred in the Rambouillet studs give fleeces from 16 lbs. up to 32 lbs., and also fetch grand prices in the market.

The first introduction of Leicesters was made in 1872, and the number of animals of this class now reaches 30,000 head. They are preferred by many to the Lincolns, particularly for the first cross with common mestizos.

There are two small Lincoln studs, the rams of which are bred exclusively for sale. The owner of the "Negrete" prefers the Leicester to the Lincoln, and does not purpose increasing the number of the latter.

Finally, there is one Leicester and Rambouillet cross flock, the object being to breed up to a long-wool type. This is the first cross-flock grown here, and the Rambouillet ewes selected were from the lowest grade.

RETURNS.

Wool. Average taken of three years' clips.

Negretti Stud ewes	10·48 lbs. per head.
Rambouillet do.	8·70 „ „
Rambouillet General Flocks	6·94 „ „
No. 1 Leicester ewes	7·81 „ „
Leicester General Flocks	6·29 „ „
No. 1 Lincoln ewes	10·24 „ „
1st Class Leicester and Rambouillet	5·64 „ „
General Return from 35,000 head	6·42 „ „

Value of Wool.

In 1893 the “Negrete” fleece wools fetched from 8¼d. to 8¾d. per lb. in the Liverpool market.

Prices obtained for Stock.

Negretti tups from	£20 to £100
Rambouillet Stud tups	12 to 80
„ General „	2 to 4
Leicester tups	4 to 12
Lincoln tups	4 to 10

The Leicester two-shear wethers are generally exported alive, but may be placed in this country at from 14s. to 16s. ; Rambouillet wethers and culls at from 9s. 6d. to 12s.

Before terminating this scant notice of the “Negrete” estancia, I must be allowed to add a word of tribute in praise of Mr. George Evans, the popular manager. The fact that animals bred on this place have been under his supervision is a sufficient guarantee that their pedigree is thoroughly reliable. A lamb born out of date, a calf or foal brought into the world like Edmund “before he was sent for,” is degraded and branded for life as “blemished.” Mr. Evans’s name has become as associated with the

“Negrete” estancia as was that of Mr. John Hannah in the days when it was still the “Carmen”; and the latter has found a successor worthy of his fame. Mr. Evans has been for more than twenty years a well-known breeder in the Argentine, and before undertaking the administration of the “Negrete,” he was the partner of Messrs. Musgrave and O’Grady of “Chacabuco” celebrity. Had we a few more men of like knowledge and activity to resuscitate the languishing rural associations of the country, we should soon see firmly established the hard-and-fast rules by which all type-breeding must be governed; and stock-raisers, who are to-day blindly mixing races, blending unsympathetic bloods, and floundering helplessly in the paths of ignorance, all regardless of local soil and climate, type, points, and atavism, would have dependable information supplied to them to guide them in their manner of doing. I must, however, close this brief notice, lest pleasant reminiscences of the “Negrete” estancia lead me astray from the matter of which the cold pages of a work on sheep should treat.

ESTANCIA “ESPARTILLAR.”

This valuable and important estate is the property of Mr. John Fair. The name of Fair is one associated with the rural industry of the Argentine from the earliest years of the Declaration of Independence, and the country is in no small degree indebted to the vigorous enterprise of this, one of the leading Saxon-

Argentine families. Mr. John Fair is the only Englishman who is an honorary member of the Argentine Rural Society.

The estancia "Espartillar" is situated in the Department of Ranchos, some seventy-five miles south of the city of Buenos Aires. The name of the estate is derived from the existence of a huge grass, abundant in that district, belonging to the fibrous *gynerius* family, and a plant well known in the paper trade. The estancia is one whose history goes back to the first days of the sheep-breeding industry in the Plate, and its stock, both of merinos and long-wools, is of classic origin.

The soil is a deep black loam on the high land, on which all classes of natural nutritious grasses flourish, including the various graminea, trefoil, soft thistles, and other valuable pastures. The land is well drained by several water-courses, which take off the surplus water in wet seasons, and these are assisted by artificial surface drains, which are extended every year.

The area of the "Espartillar" is six square leagues (40,000 acres). The stock it carries is as follows:—

Sheep	.	.	.	.	.	54,000 head.
Cattle	.	.	.	.	.	8,000 „
Horses and Mares	.	.	.	.	.	1,900 „

Being the equivalent of 2.50 sheep per acre.

The head station includes every modern improvement in buildings; shearing, baling, rack, and general sheds; stables, yards, and dipping plant; and is well supplied with home fields of lucern, maize, and other

necessary forage. It is surrounded with stately woods of acacias and eucalyptus trees, not only employed to supply timber for the requirements of such an extensive estancia, but also to serve as shelter for the stock.

The estate is divided into twenty-five paddocks of various sizes, the divisionary lines being made of swing fences with hardwood posts and droppers, and galvanised wire. The sheep stock roam in freedom in these wide enclosures, and the Australian system of tending and boundary riding has long obtained favour with the administration. As many as 5000 head of long-wools are allowed to run in freedom in one paddock, and scab has almost become an unknown quantity in the estancia.

The history of special sheep-breeding dates back to 1856, the stud stock of that period being of pure Rambouillet origin. Many of the prominent French merino Argentine studs of to-day owe their descent to the "Espartillar" stock. English long-wools were shortly after introduced, and the tradition of the breeding of both classes of bleaters is practically collateral. The "Espartillar" has been eminently successful in competitive exhibitions, both in the Argentine and abroad. It is responsible for the strain of blood existing to-day in many hundreds of thousands of Argentine sheep, and has been and is one of the chief fountain-heads to which breeders from all corners of the country have gone in search of typical sires for the betterment of their own flocks.

The Rambouillet stock at present numbers 21,000 head. This includes two stud flocks of pure origin. The type of the sheep is a large and vigorous body combined with a close and voluminous fleece of medium to fine wool.

The Lincoln stock numbers 33,000 head, including 5000 practically pure ram-breeding ewes. The type of the "Espartillar" Lincoln is especially commendable for its valuable fleece. The writer has frequently admired the even quality of the wool upon the "Espartillar" Lincoln tups—an evenness not easily attainable in this class of sheep, and which is too frequently neglected by the English breeders. Both the Rambouillet and Lincoln rams from this place are in great demand with the Argentine breeder, and they have acquired a celebrity which they well merit, by reason of their purity and judicious selection.

RETURNS.

Wool.

Average per head from 21,000 Rambouillets . . .	5.42 lbs.
" " 33,000 Lincolns . . .	7.77 " ¹
General average per head on everything that enters the shearing yard, exclusive of suckling lambs . . .	7.01 "

Value of Wool.

In 1893 the Espartillar fleece wool fetched from 8d. to 8½d. per lb. in the Liverpool market.

Increase of Stock.

Average returns taken over a large number of years show an actual *realisable* increase of 16½ per cent, which is, of course, exclusive of home consumption.

¹ This is probably the heaviest wool return, obtained from such a large number of sheep, in the Argentine Republic.

Prices obtained for Stock.

Rambouillet and Lincoln tups, from £3 to £14.

Lincoln cross two-shear wethers, from 14s. 6d.

Rambouillet wethers and culls, from 9s. 6d. to 12s.

The management of the "Espartillar" is in the capable hands of Mr. Frank Tetley. The preceding pages tell their own tale of what judicious administration on a River Plate estate will bring forth. I take this opportunity of thanking Mr. Tetley for having provided myself and the reader with statistics which serve as standard information upon which every reliance can be placed.

"DOS HERMANOS."

Ramon Santamarina and Sons.

Messrs. Santamarina are the owners of several estancias, and the number of sheep they at present possess is over 300,000 head. I have selected their estate, "Dos Hermanos," as a specimen run.

This estancia is situated close to the town of Tandil, and some 250 miles south of the city of Buenos Aires. The soil is chiefly a rich black loam, and the grasses are all of the finer sorts. The Tandil stream runs through the estate, watering most of the paddocks. The land is fenced in and divided into paddocks of various areas. Some of the land has been under cultivation, and is again restored to pasturage.

The stading is very complete, and comprises wool and general sheds, stables, cow-yards, shearing shed,

dipping plant, extensive labourers' quarters, etc. For the past two years the Barigaud shearing machine has been employed here, and the results have been satisfactory.

The area of "Dos Hermanos" is 22,724 acres, and its stock-carrying capacity is as follows:—

Sheep	45,000 head.
Cattle	5,000 ..
Horses and Mares	500 ..

Being the equivalent of 3·24 sheep per acre.

Of the sheep, 30,000 are Rambouillet merinos and 15,000 are Lincoln crosses. The former date back twenty-five years, and owe their blood to a Rambouillet stud flock of classic descent, which still exists on the "Dos Hermanos." Since 1885 Messrs. Santamarina have turned their attention to Lincolns. They have imported on various occasions valuable sheep from the principal Lincolnshire breeders, and they have also bought extensively from Messrs. Gibson Bros. The Lincoln stud flock is one of excellent type. There are no rams sold from here, the whole of the stud males being employed for service upon other estates the property of the same gentlemen.

RETURNS.

Wool.

Average per head on 45,000 sheep 4·84 lbs.

Value of Wool.

These wools *netted* 6½d. this year, after deducting all costs and brokerage.

Prices obtained for Stock.

The only stock sold from here are the wethers, which fetch from 8s. to 10s. 6d. each.

The Tandil district is greatly indebted to the Santamarinas for the assistance they have lent to the pastoral industry. The local rural association at that place was founded and is mainly supported by them. Don Ramon Santamarina has held a seat for some years in the Council of the Argentine Rural Society. Their name, indeed, is honourably associated among those of the first leaders in the sheep-breeding industry of the River Plate.

ESTANCIAS OF DR. CELEDONIO PEREDA.

The five estates of Mr. Pereda, situated as they are in various parts of the Province of Buenos Aires, afford a general and practical illustration of the stock-productive qualities of the River Plate pasture lands. Their combined area exceeds 168,000 acres; and, independent of the portion let to colonists and others, they carry 45,000 sheep, 22,500 cattle, and 4150 horses and mares, the property of Señor Pereda.

Don Celedonio Pereda has taken an active part in the furthering of Argentine rural interests. He has from time to time imported considerable quantities of horses, cattle, and sheep from Europe, and in each estancia there exist studs of pure-bred

stock. He has for some years been an active member of the committee of the Argentine Rural Society, and has ever shown a disinterestedness, and a readiness to sacrifice both time and money in behalf of all matters affecting the pastoral industry of his country. Under his chairmanship the Azul Rural Society has taken its place among the district associations of the Province of Buenos Aires, and the bi-annual meetings and fairs celebrated there have fomented the improvement in stock-breeding in the locality. In 1889 he visited England, and the result of his inspection of English farms and stock has shown itself in numerous useful articles contributed to the River Plate press, and in the acquisition of some valuable specimens of British horses, cattle, and sheep. As will be seen farther on, there has been established in each estancia a nucleus of carefully-selected stud animals, and these will in time leaven the general stock, and raise it to a high standard.

Don Celedonio Pereda has kindly provided me with a detailed account of each estancia, and the matter contained in his report on them is of such value to the reader that I purpose quoting him at length, reserving my summary for the conclusion of this brief section.

“*La Isabel.*”—This estancia is situated 180 miles south of the city of Buenos Aires, and 6 miles north of the town of Azul. Its area is equal to 15,067 acres, of a somewhat inconvenient shape,

being composed of three oblong rectangular blocks of 5022 acres each, which touch one another at one of their angles, but have no common divisionary line between any two of them. The estancia is divided into twenty-two paddocks, the most extensive of which is of 1500 acres. The boundary and divisionary fences are constructed of hardwood posts, 7 wires of galvanised steel, and hardwood droppers. The total lineal measurement of these fences is equal to 72 English miles.

The Azul stream traverses the estate longitudinally, and supplies most of the paddocks with excellent water; and in those paddocks where the river does not enter, there are wells provided with chain pumps, which give an abundant supply of water to the stock. The land is in parts drained by surface ditches. The soil is a rich black loam, and the pastures are well covered with the finer qualities of grasses, including the Italian rye, wild oat, trefoil, etc.

There are over 20,000 sheep run upon this estancia. The original stock was of cross Rambouillet descent, including a stud flock of the same blood. Since 1882 Señor Pereda has limited himself to the long-wool on the "Isabel," including among other purchases an importation of pure Lincoln ewes, and the introduction of two entire flocks from Messrs. Gibson's estancia. There exists to-day a valuable Lincoln stud of some 250 ewes, notable for the silkiness and lustre of their fleeces.

The rams bred here sell at from £3 to £10 each, the supply being less than the demand.

The stock-carrying capacity of "La Isabel" is as follows :—

Sheep	20,000 head.
Cattle	3,400 ,,
Horses and Mares	750 ,,

Being the equivalent of 2·80 sheep per acre.

The estancia is provided with a commodious head station, including spacious shedding for the fine stock, dipping plant, extensive plantations of eucalyptus, acacia, and other trees, and 25 acres of lucern for winter fodder.

RETURNS.

Wool.

Average per head from Lincoln Stud	9·33 lbs.
" " " 13,000 Lincolns	5·64 ,,
" " " 7,000 Rambouillets	5·21 ,,
General average per head on everything that enters the shearing yard, exclusive of lambs	5·40 ,,

Value of Wool.

In 1893 the "Isabel" wool fetched the following in the Buenos Aires market :—Lincoln cross from 6½d. to 6¾d. per lb.; Rambouillet, 6d. per lb.

Prices obtained for Stock.

Lincoln tups, from	£3 to £10 each.
" cross wethers, from	13s. 6d. to 16s. each.

"*Manantiales.*" — This picturesque estancia is situated on the slopes of the Azul chain of rocky





"MANANTIALES" ESTANCIA.

THE PROPERTY OF DON CELEDONIO PEREDA.

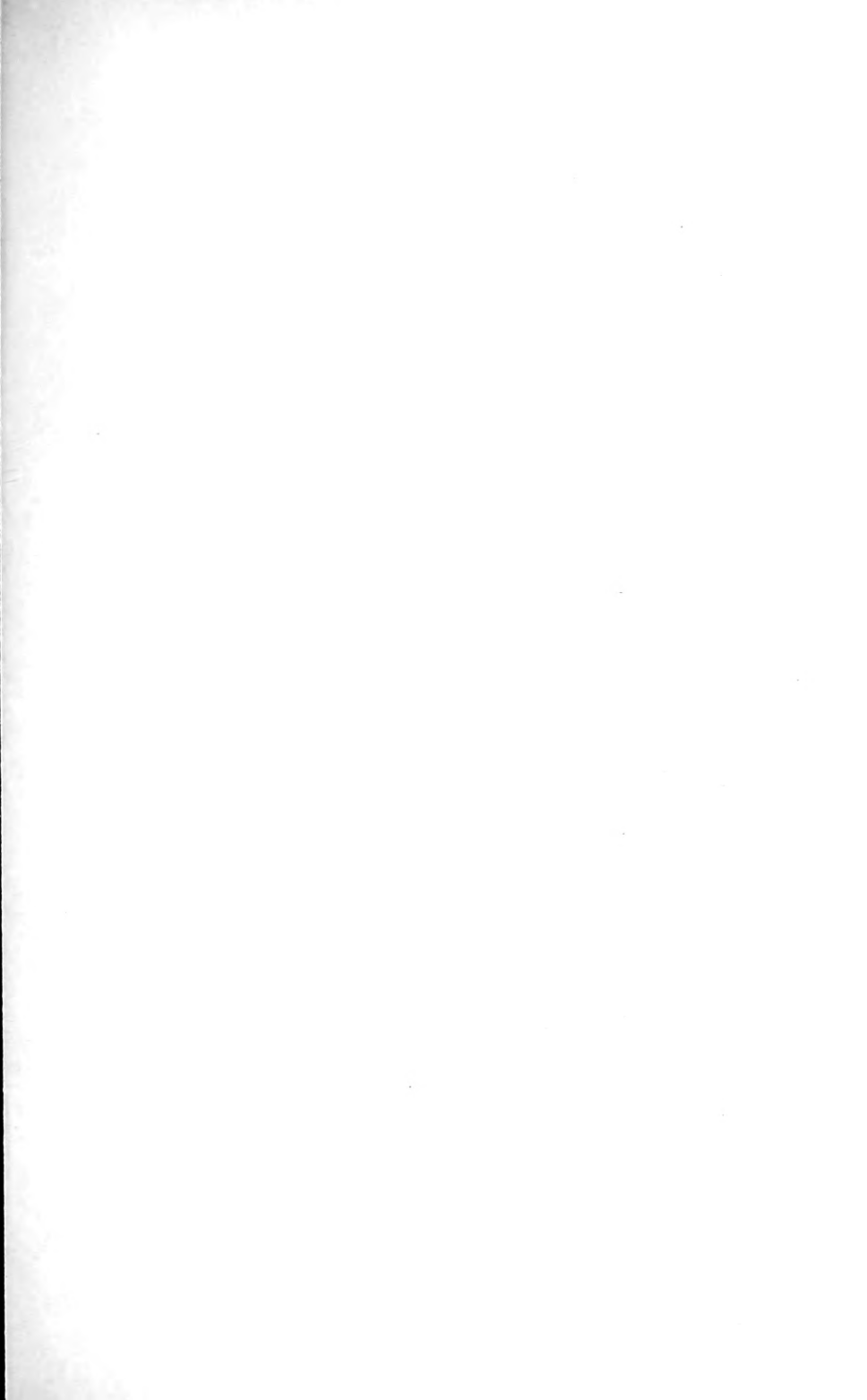
hills. The soil is rich in parts, and though clothed at present with coarse vegetation the softer grasses are increasing and the land is attaining valuable grazing properties. The hill-side streams, at one time the cradle of the fatal fluke-worm (*Distoma hepático*), are now subdued by dams, and the parasite occasions little disaster in the flocks. The water supply, in such a situation, is of course excellent. Surface-draining has been carried on extensively, and there now exist over 65 lineal miles of ditching. The result of this systematic drainage has been the redemption of innumerable stagnant pools, at one time very hot-beds of fluke, and to-day converted into excellent pasture-land. *Apropos* of this subject Mr. Pereda makes the following important observations:—

“The existence of these quagmires may be explained in the following manner:—The rain-water, seeking its natural level, precipitates itself into the hollows of the land, and finding no exit thence, becomes stagnant, assisted by simple filtration in producing these unwholesome bogs and pools. The remedy for this evil is to provide an exit for the water, which is what I myself have carried out. The result of so simple an operation is evident this present year. The ravages made by the fluke in the Tandil and Azul highlands have extended to a mortality of from 50 to 60 per cent among the flocks, including those in the immediate neighbourhood of ‘Manantiales.’ Upon my estancia the parasite has

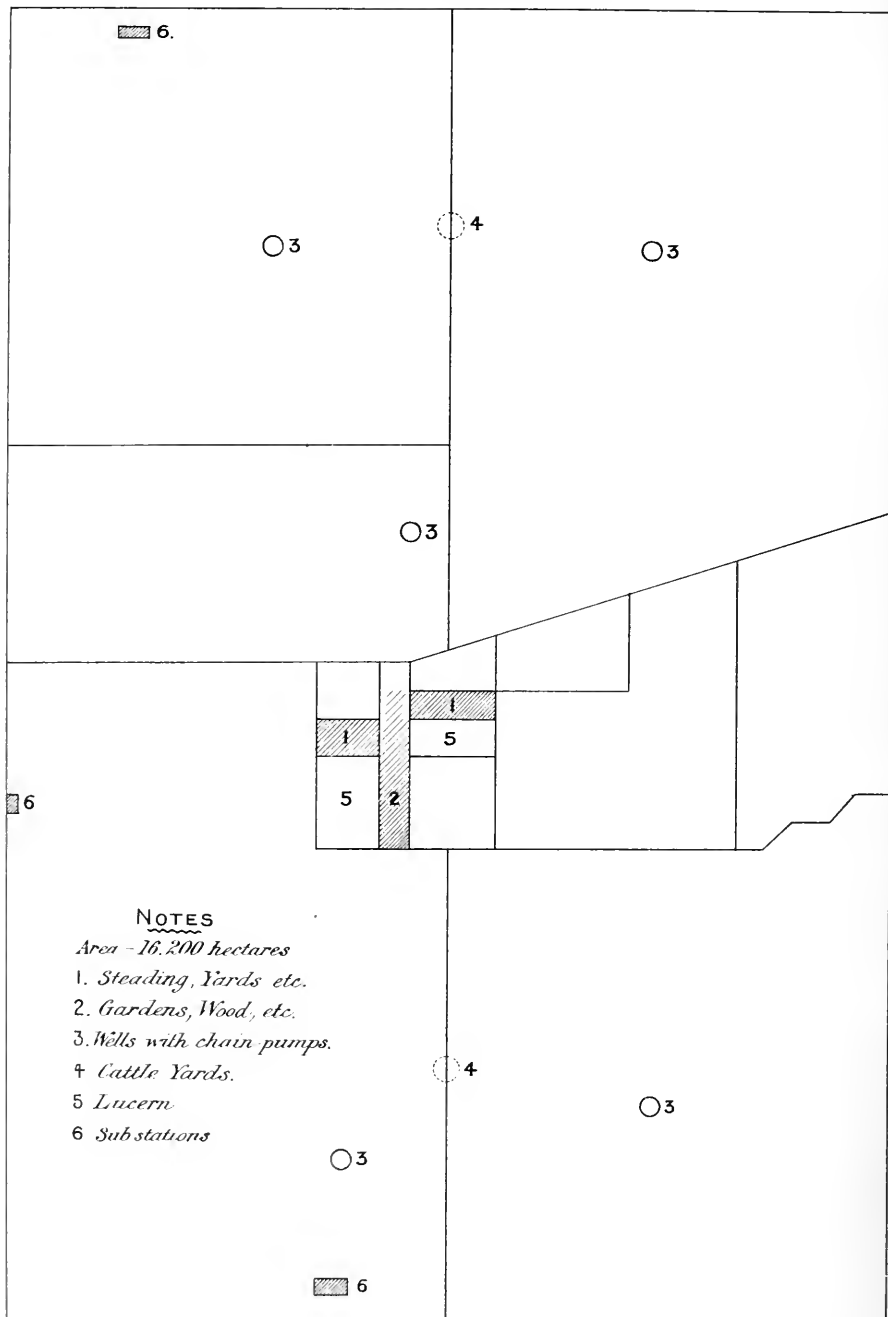
done no damage whatever, and I attribute this entirely to the drainage scheme I have carried out; justified in thinking so by the fact that no run suffered more from this scourge than did ours ten years ago. According to the opinion of competent people whom I have consulted, and works I have read, prevention is the sole method we have for combating this plague, and the present case proves that theory is in harmony with practice. In order to combat the various classes of worm which exact such a severe annual tribute from our flocks in the south-eastern lands, we must declare war without quarter against all stagnant pools, hollows, quagmires, and marshes; and where unable to drain them we must fence them off; and for the water supply of our herds we must limit ourselves exclusively to *running-streams* and *wells*." These well-timed remarks, the outcome of an educational experience, are of great importance; and it is for this reason that I have quoted them in full.

In "Manantiales," as in the "Isabel," there is a valuable stud flock of Lincoln ewes of pure descent and notable type. Both Lincoln cross and Rambouillet sheep are run upon the land, the former finding preference in the eyes of the owner, who is gradually drafting out his fine-wools to his western estates.

The following is the stock-carrying capacity of "Manantiales":—



"13 DE ABRIL"
PEBUAJÓ
Province of Buenos Aires



Area—14,173 acres.

Sheep	10,600 head.
Cattle	4,200 „
Horses and Mares	800 „

Being the equivalent of 2.62 sheep per acre.

The estate carries 40 miles of wire fencing, being divided into ten paddocks of areas varying from 400 to 2000 acres. There are 20 acres of lucern for the special forage of fine stock. The estancia is conveniently near the thriving town of Azul, and does a good business in providing for local consumption.

RETURNS.

Wool.

Average per head from Lincoln Stud	9.11 lbs.
„ „ 6000 Lincolns	5.21 „
„ „ 4,600 Rambouillets	4.30 „

Value of Wool.

1893. Buenos Aires Market. Lincoln	6½d. per lb.
„ „ „ Lambs' Wool	5¾d. „
„ „ „ Rambouillet	5¾d. „

Prices obtained for Stock.

Lincoln tups from £4 to £12 each.

„ cross wethers from 12s. to 14s. each.

No female progeny is sold from this or the “Isabel” estancia, the culls being drafted to other estates for breeding purposes.

“*Trece de Abril.*”—A sketch plan of this is subjoined, which serves to convey a general idea of the division of land on the paddock system.

Here we have land of a description totally different from that in the south and east of the Province of Buenos Aires. The “*Trece de Abril*”

is situated in the west of the Province, some 20 miles from the town of Pehuajo. The land is high and of a sandy character, entirely devoid of marshes and lagoons. The water supply is obtained from surface wells of considerable length and width, and of little profundity. The object is to tap the surface water, which is abundant, and avoid sinking too low for fear of meeting the brackish substrata. The land is favourable for agriculture and arboriculture. The rainfall is increasing annually; and this district, wrested but ten short years ago from the savage, is rapidly developing into a grand pastoral and agricultural territory.

The principal industry in this estate is that of cattle-raising; but there are also to be found 5000 head of Lincoln cross sheep, which number might be increased to 20,000 without removing a single cow from the land.

The following is the present stock-carrying capacity of the "13 de Abril":—

Area—40,014 acres.

Sheep	. . . . .	5,000 head.
Cattle	. . . . .	10,500 „
Horses and Mares	. . . . .	1,600 „

Being equivalent to 1.71 sheep per acre.

The estancia is divided into fifteen paddocks, there being 55 miles of fencing upon the estate. There are already 140 acres laid down in lucern for cutting and providing winter fodder.

RETURNS.

Wool.

Average per head from Lincoln Stud	.	.	.	8.05 lbs.
" " 5000 Lincolns	.	.	.	5.97 "

Value of Wool.

1893. Buenos Aires Market. Fleeces	.	6¼d. to 6½d. per lb.
Lambs' Wool	.	5¼d. " "

The above figures show the effect of healthy high lands upon the bleaters, the average return per head being superior to that of the home estates, though the sheep in the latter are of a superior class. The Lincoln stud counts 400 head.

"*Nueva Castilla*" and "*San Baldomero*."—I group these two estates together as belonging to the same region, which still remains little exploited by the pastoral pioneer. Their united area amounts to 98,800 acres, and though scarcely deserving of classification as sheep land, being at present partly devoted to agriculture and partly to cattle-raising, they have before them a future in the sheep industry which entitles them to some notice.

In his interesting description of this land, Mr. Pereda says:—"These two estancias are situated some 15 miles from the town of Trenque Lauquen, in the far west of the Province of Buenos Aires. In the year 1884, when we first stocked-up, these lands were quite savage, we being the first to run cattle in that district. Agriculture and arboriculture find an excellent field here, though I can scarcely recommend a too generous development of the former industry

in a territory but little trod down by cattle. In former years the rainfall was very limited, but at present there is a notable increase in this respect, which I scarcely know whether to attribute to a passing chance phenomenon, or to an atmospheric transformation brought about by the increasing density of stock and land culture. Scab here is almost unknown, a circumstance which I attribute to the aridity of the atmosphere and to the large area enjoyed by every sheep. In conclusion, I would state that in my opinion what is most necessary to a rapid progress here and an increasing income, is the supply of labour, and I refer to that class of labourer who comes zealous to work in the field, disabused of the idea that he is a lord of this primitive creation and deserving of making a fortune in a week. Our Pampa responds willingly to him who works soberly and economically, and in a short time the pioneer will find himself an independent man; and when fortune is not untoward, the immigrant, who arrived but yesterday ill-clad and penniless, soon finds himself transformed into a man of capital."

One-half of the two estates is let to colonists; the other half, viz. 49,400 acres, is stocked by Mr. Pereda, and at present carries 10,000 sheep, 4400 cattle, and 1200 horses and mares. The sheep are all of Rambouillet breed, and originate from the "Isabel" and "Manantiales" estancias. Here they are free of foot-rot and other plagues bred in a humid climate. The stud Rambouillet flock brought here in 1890,

and whose origin is classic, thrives wondrously. Pomeranian rams have been imported for its service, and the wool return tells its own tale. Rams bred here give from 20 to 26 lbs. The general Rambouillet stud gives 8·41 lbs. per head. In 1891 40,000 sheep shorn here gave an all-round average of 4·67 lbs. This present year the wool from these two estates fetched an all-round price in the Buenos Aires markets of from 5¼d. to 5¾d. per lb.

We have in the foregoing paragraphs a description of five different estates, embracing every description of soil, from the low moist lands of the south to the sandy arid uplands in the west. We have also a confirmation of a statement made elsewhere in this work, viz. that there are to be found in the Province of Buenos Aires pastures on which the Lincolns and other long-wools thrive, and pastures upon which the Rambouillets and other merinos readily acclimatise. This mixed capacity of the Buenos Aires territory is one of great moment. Analysing the wool returns provided by Mr. Pereda, which correspond to common sheep in their greater part, we have the following:—

20,000	sheep at the	“ Isabel,”	giving an av. of	5·40	lbs. per head.		
10,600	“	“ Manantiales”	“	4·82	“	“	
5,000	“	“ Abril ”	“	5·97	“	“	
40,000	“	“ N. Castilla,” etc.	“	4·67	“	“	
<u>75,600</u>				<u>4·97</u>			

This wool has fetched an all-round 5¾d. in the Buenos Aires markets.

“LAS BARRANCAS.”

This estancia was acquired some fifteen years ago by Mr. Patrick Reid, at one time the manager of the “Espartillar,” a description of which precedes the present pages. “Las Barrancas” is managed by Mr. James M^c. Reid, the son of the owner, and to whom I am indebted for the material of the following brief sketch.

The area of “Las Barrancas” is one and three-quarters square leagues (11,676 acres). The estate is picturesquely situated upon the winding chain of lakes near the town of Chascomus, and some eighty miles to the south of the city of Buenos Aires. The name of the estancia is derived from the lofty banks which in places rise from the shore of these lakes. The soil is a rich black loam, attaining a great profundity in places, more especially in the vicinity of the lakes. The estate is almost entirely water-bound by lagoons and streams. The natural grasses are of the best qualities, including valuable classes of gramineas, wild oat and other seeders, trefoil and soft thistle.

The carrying capacity of the estancia is as follows :—

Sheep	19,500 head.
Cattle	2,500 „
Horses and Mares	200 „

Being equivalent to 2.86 sheep per acre.

Mr. Reid adds, *apropos* of this subject:—"I give you a count of the actual stock upon 'Las Barrancas,' as it is to-day. I often run more sheep, though I generally keep sheep stock at about 12,000 to the square league," exclusive of cattle and horses.

"Las Barrancas" is, by reason of its comparatively limited area and the valuable character of the stock it carries, a model sheep-run. The appointments of the head station, the division of the land into paddocks, and the general administration of the estate are all of a class and system, the natural outcome of an intelligent and experienced management. The breeds of the estancia are deservedly popular in the local markets. The demand for the produce of this estancia can be sufficiently illustrated by the fact that sire-buying breeders complain annually that they have "arrived too late."

There are a limited number of fine-wools, all claiming descent from the French Rambouillet. This class of sheep is reduced to a quantity sufficient to supply the usual clients of the estancia.

The majority of the sheep are Lincoln, and include two valuable stud flocks of practically pure origin, and of a useful evenly-fleeced type. Both in the merino and the long-woolled stock Mr. Reid has been a successful competitor in the local exhibitions, and has carried off several prizes. The tups offered for sale are characterised by their even quality and good preparation.

I have not been supplied with average wool

returns, but the following are the minimum and maximum fleeces of the "Barrancas" stock:—

RETURNS.

Wool.

Rambouillet	from 5½ to 13 lbs.
Lincoln	„ 5½ „ 18 „

These wools wash out as follows:—

Lincoln No. 1	55 per cent.
„ „ 2	48 „
Rambouillet No. 1	42 „
„ Merino	40 „

Value of Wool.

The "Barrancas" fleece wool has fetched in 1893, in the English market, 8d. and 8½d. per lb.

Increase realised per cent.

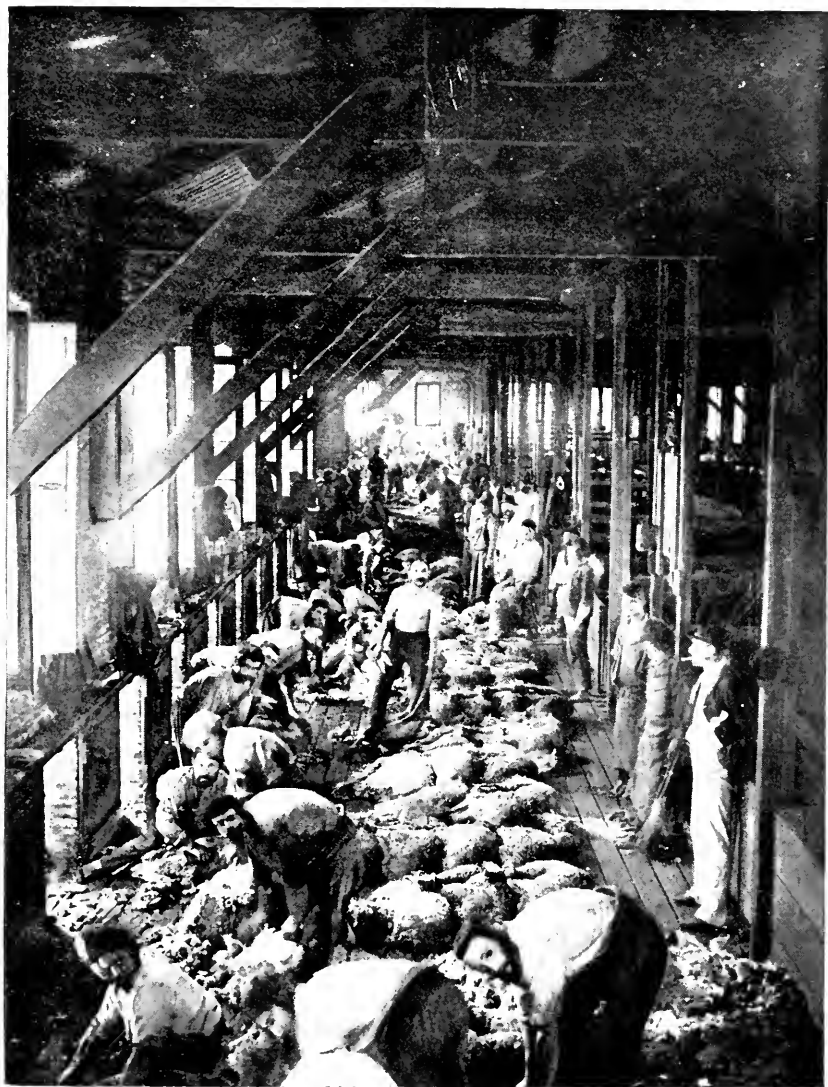
Exclusive of home consumption	28 per cent.
-----------------------------------------	--------------

Prices obtained for stock.

Rambouillet tups	£3 to £5 each.
Lincoln „	£4 „ £25 „
Wethers.—Most of these are exported. The tail-end of the two-shear lot was sold locally in 1892 at 14s.	
Culls	from 10s. 6d. to 14s. each.

The "Barrancas" estancia, though youthful by the side of most other typical estates of high standard, has already acquired a deserved notoriety. Were it my mission at the present time to treat of either cattle or horses in conjunction with the sheep industry of the Argentine, this estancia could show equally creditable results in either species.





INTERIOR OF THE "CURAMALAN" SHEARING SHED. *To face page 235*

THE "CURAMALAN" ESTATE.

This vast estancia is situated in the south of the Province of Buenos Aires, at the foot of the Ventana range of hills, and distant some sixty miles from the seaport and town of Bahia Blanca. Its area exceeds 700,000 acres, and it at present carries about 300,000 head of sheep, 50,000 head of cattle, and 18,000 head of horses and mares. There are three colonies upon the estate, each with its centre of population, and comprising in all a cultivated area of 160,000 acres. These colonies are worked by Russian, Italian, and French immigrants, and are already turning out huge quantities of grain. To undertake a general description of this great rural organisation would require more pages than I can devote to the subject, and, however interesting such a task would be to me, and possibly to the reader, I must perforce limit myself to the sheep department.

The analysis of the sheep stock, as given in the annual report for 31st March 1892, shows the following divisions of class:—

125 pure Lincoln ewes and hoggets.
63 pure Lincoln rams.
1,995 cross-bred Lincoln rams.
300 cross-bred Lincoln ram lambs.
254,611 general sheep.

All the stock has a Lincoln strain of blood in it, and the system pursued in breeding is to combine wool with mutton by introducing Lincoln blood into the mestizo-merino sheep.

The comparison of stock-taking for 1891 and 1892 shows a satisfactory increase.

Count of sheep, 31st March 1891—231,058 head.

Sales from 1st April 1891 to 31st March 1892	24,306
Count of sheep, 31st March 1892	257,094
	281,400
Less stock bought during year	277
	281,123

Increase, 50,065 head; or say 21 $\frac{3}{4}$ per cent.

The sales of the year included 14,306 head of butcher stock, and the average price for the whole amount all round ascended to six shillings. The result of the present year promises to be equally good, no less than 305,000 head having entered the shearing yard.

I quote the following from a recent number of the *River Plate Sport and Pastime*, which dedicated a few of its columns to a description of "Curamalan."

"The land is very suitable for bleaters, and the wool of the Curamalan flocks is always eagerly sought after by the buyers. There are 130 imported Lincoln ewes for breeding rams for use in the flocks, and beside those already used by the Company, 50 more imported Lincoln rams were received from England this spring, everything being done to improve the quality of the flocks. The sheep are all in first-rate condition, and there is little or no scab amongst them. One lot of 130 Lincoln rams, in a paddock near the house, showed the class of tups used, which is the

best obtainable. These rams appreciated thoroughly a long shelter in their paddock, by which they were protected from the fierce rays of the sun. Last year, I believe, the Curamalan wool fetched the highest prices in the market; and this year it has fetched between \$7 and \$8" ($5\frac{1}{2}$ d. to $6\frac{1}{2}$ d. per lb.), "some 650,000 kilos" (1,410,500 lbs.) "having left the estancia. The shearing goes on in three different stations, the principal shearing shed, which is some 3 miles from the headquarters, being considered the finest one in the country. A hundred men can work in it comfortably; a few machines were tried this year for the first time as an experiment, and having been successful they will probably be used largely next year. In the centre of the shed await the sheep to be shorn; they are divided into a dozen or more lots by sliding gates, which are let down when the shed is full of sheep, and so prevent crowding. The flocks are conducted into the shed in the first instance by one or two trained sheep, who work splendidly, and save a great deal of trouble by filling the shed the minute it is empty, and as soon as the door is opened.

"Each shearer works opposite a numbered door, leading into a race outside, which has a corresponding number, and in to which he puts his sheep as soon as it is shorn, so that when a flock is finished all that has to be done is to count the shorn sheep in these divisions, and credit each shearer with the number standing in his corresponding race. In this way the work goes on like clockwork, as indeed it would

require to do when the enormous number of sheep shorn in a season is considered. Above the shed is a large store for wool, which is reached by an outside staircase, which also forms, by an ingenious arrangement of its sides, a shoot for the bales of wool.

“Another labour and time-saving apparatus is the sheep-dip, for which clever invention Mr. Thomas Hearne, one of the head overseers, who has been at Curamalan since the property first came into the hands of Mr. Casey, is responsible. The apparatus consists of a platform, raised a few feet off the ground at the end of the bath, and on to which the sheep to be dipped are driven until it is full. The platform is hinged and balanced at its centre, so that it can easily be tipped up when full of sheep, and a door leading into the bath being opened, the sheep drop one by one, without any assistance, down into the bath. When the platform is empty it again becomes horizontal, is again filled with sheep in a few seconds, and so on. In this way three men with a dog can dip eight or nine thousand sheep in a day, and do more work than it would take six or seven men to get through. To realise the expeditious manner in which sheep can be dipped by Mr. Hearne’s method, the apparatus must be seen at work, when its superiority over other methods is apparent at once.”

The capital invested in cattle is about 90 per cent of that invested in sheep, and the capital invested in horses is 90 per cent of that in cattle; but

an analysis of the returns from each class of stock shows that the sheep are the golden givers. I will leave aside the horses, as it is not so easy to arrive at their return, many of them being used for the colonies, etc., where they occasion a profit not credited to them in the balance sheets. But dealing with cattle and sheep, taking the Company's valuations, taking land at 40,000 national dollars per square league, and calculating 10,000 sheep to a clean league, or 2000 cattle to the same area, *but not together*, we have the following results, into which working expenses do not enter:—

	Nat. dols.
Land required for 257,094 sheep, say $25\frac{7}{10}$ sq. leagues at \$40,000	1,028,000
257,094 sheep valued in	1,262,949 50
	2,290,949 50
Stated profits for 1891-1892 from sales of wool, skins, and live stock	996,440 31
<i>Being $43\frac{1}{2}$ per cent upon capital.</i>	

	Nat. dols.
Land required for 43,637 cattle, say $21\frac{8}{10}$ sq. leagues at \$40,000	872,000
43,637 cattle valued in	1,078,297
	1,950,297
Stated profits for 1891-1892 from sales of hides and live stock	120,063 84
<i>Being about $6\frac{3}{10}$ per cent upon capital.</i>	

Though undoubtedly the working expenses in managing sheep are much more than in managing cattle, it is nevertheless apparent that the former

stock give much more for the grass they eat than the latter.

The "Curamalan" estate was acquired in a concession from Government by Mr. Edward Casey and others some fifteen years ago. At that time the lands in the south of the Province of Buenos Aires were but little known and stocked-up, the frequent raids of the Indians making the life of the breeder a dangerous one, and exposing him to having his stock stolen and his houses burned. The change wrought in a decade is one that almost appears to border on the territory of dreamland. The Great Southern Railway trunk line goes through the estancia, and there are no less than four stations on the estate—the time taken by the passenger trains to traverse this magnificent possession being two hours. Round these railway stations there cluster the villages where the colonists live, with fine buildings of brick and mortar, schools, churches, hotels, shops, and mills. The little stream of commerce begun in 1883 is becoming a mighty river. Woods are springing up round the steadings. The head station, from which the estate is managed, is connected with the substations by telephone, and the electric bell in some distant overseer's house rings him up to tell him that the manager, thirty miles away, desires to have the cattle mobbed in the morning. "Curamalan" is now in the hands of a company, and if the directors pursue the wise policy they at present profess, the estate is destined to become one of the most successful enter-

prises in the Argentine, alike beneficial to the shareholder and the country in which his capital is invested.

To summarise the foregoing pages. We find that eight estancias, with a total of 193,341 acres, carry the following stock :—

Sheep	.	.	.	254,100
Cattle	.	.	.	42,600
Horses and Mares	.	.	.	7,650

Being an all-round average equivalent of 2.69 sheep per acre.

The return per head from these 254,100 sheep has been 6.03 lbs. of unwashed wool.

The average increase, exclusive of all mortality and home consumption, is 22 per cent. But few of the breeders have supplied statistics in this respect, and it is the writer's opinion that the average increase would be more correctly stated at 26 per cent.

Taking the compute of these estancias it is evidently the custom to divide the stock as follows :— for every 6 sheep 1 cow, and for every 35 sheep and 6 cows 1 horse.

The fine wools average a *net* price of 5d. to 5¼d. this year in Buenos Aires, and the long wools from 5¾d. to 6¾d. Wools sold in Liverpool and London have varied from 8d. to 9d. per lb.

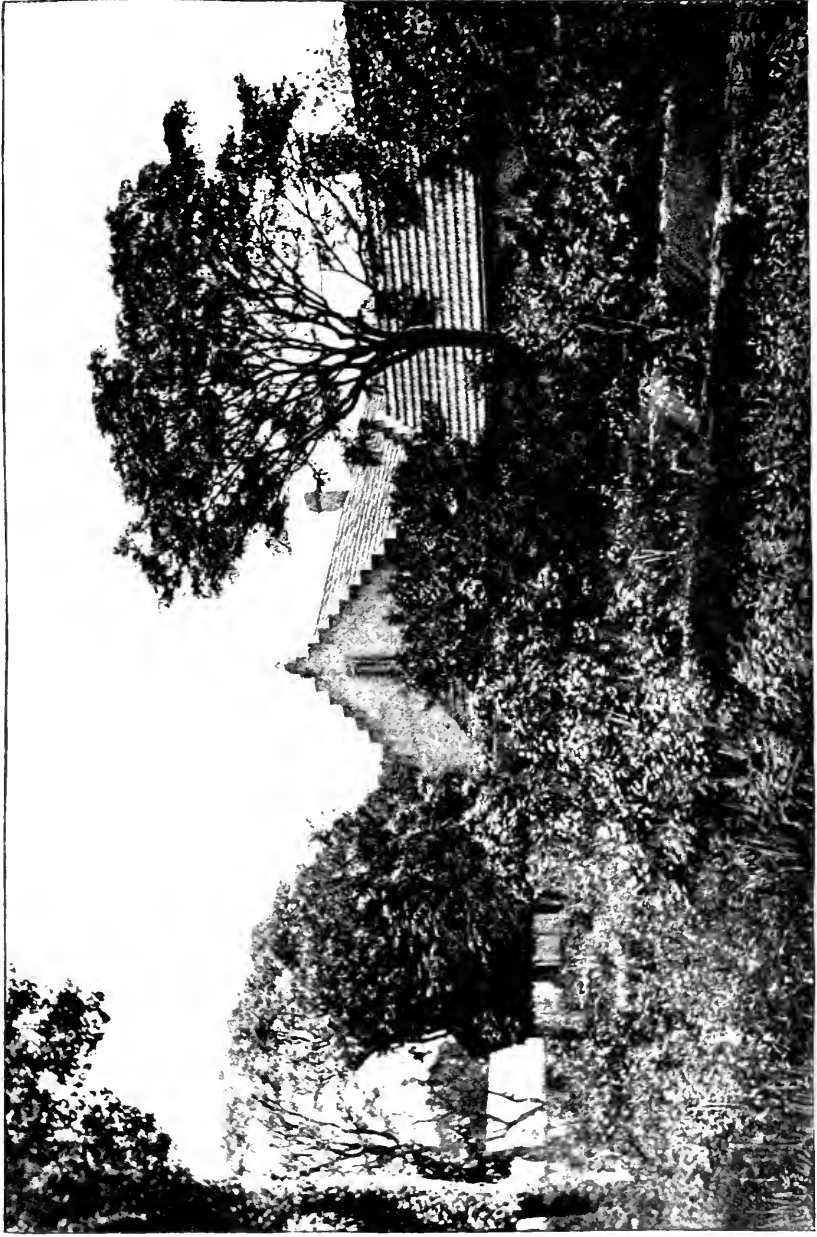
The demand for two-shear long-woolled wethers is apparent, 14s. to 16s. being the general price quoted. That for merino wethers and culls is also good, varying from 9s. to 11s. 6d.

Taking to-day's prices of land, stock, and working expenses, and the returns as shown in the preceding pages, it would be an easy matter to draw up a prospectus for a very safe and lucrative investment.

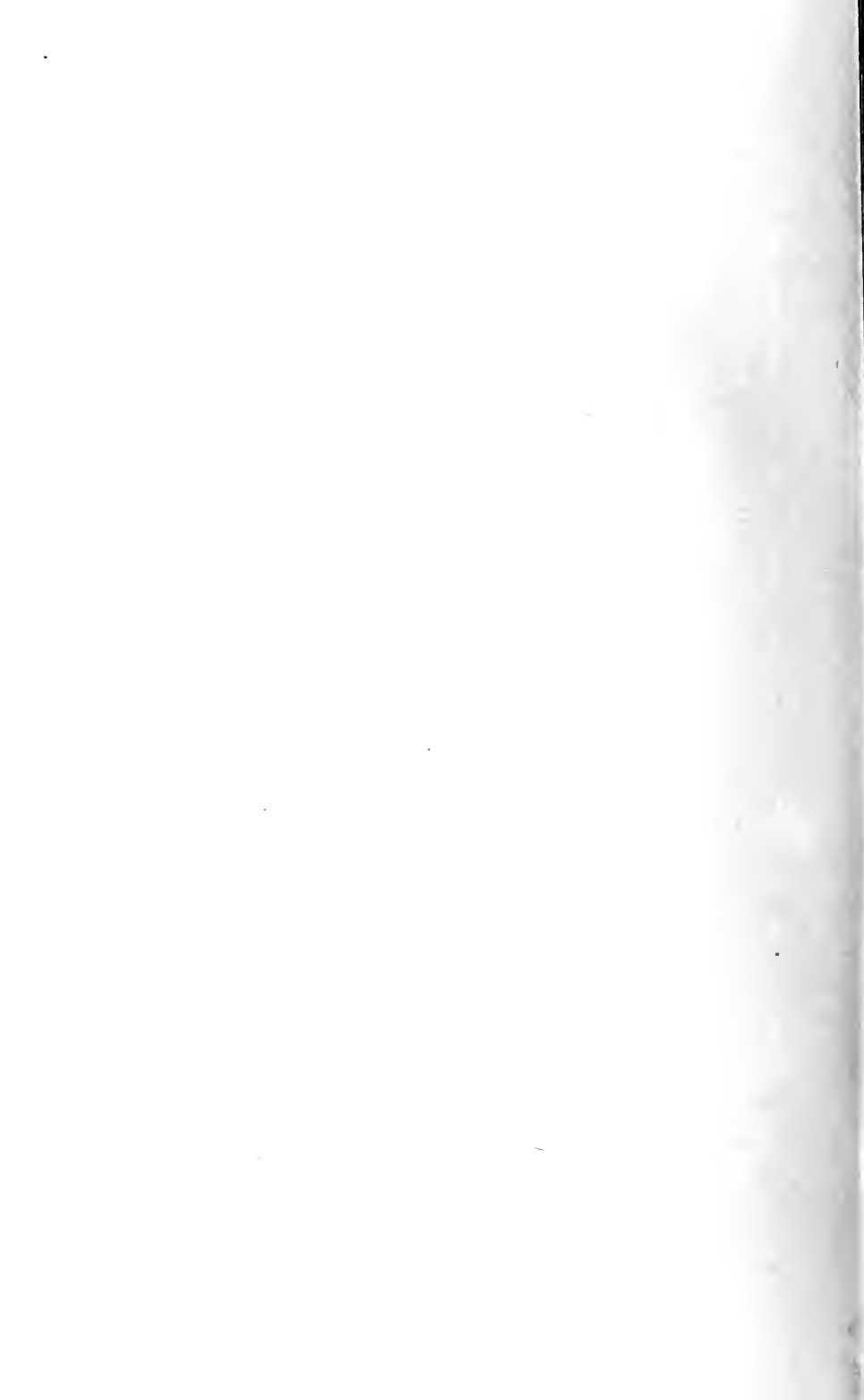
ESTANCIA "LOS YNGLESES."

The task of writing a history of the foundation of the estancia "Los Yngleses," and of the ups and downs in the sheep-breeding industry there, becomes a labour of love to one whose own life is so intimately connected with it, and who has at his command such a quantity of data and old archives that there is more danger of excess in detail than insufficiency in the collaboration. From these pages too it will be seen that though there have been seasons of trial and reverses, they have ever been followed by years of success; that through the many changes that have taken place in the country from the first years of the Independence the pastoral pioneer has progressed steadily; and that this "South American Republic" has never been quite so deserving of its fame among Europeans as a hot-bed of revolutions and assassination as it obtains credit for. Possibly the story of seventy years on an Australian sheep-run would be more full of disaster and failure than this chapter on the history of a River Plate "estancia."

Mr. John Gibson junior, the first member of the family to come to the River Plate, sailed from England towards the close of 1818, landing in Buenos



"LOS YNGLESES" HEAD STATION.



Aires early in the following year. The importance of the cattle-breeding industry and the magnificent qualities of the pasture-land soon attracted his attention, and by 1825 he had acquired five estancias. One of these was shortly afterwards sold to Messrs. Robertson, who founded there the famous Scotch colony, and later on resold the land to Mr. William Fair. But the only estancia with which we have to do at present is the "Yngleses," which was bought from a Señor Hidalgo in May 1825. The land had been first stocked and built on by one Esteven Marquez in 1810, who transferred it to Hidalgo, knowing that the latter was acting as "middle man" in the matter because he could not bring himself to sell directly to a "gringo" (foreigner). At the time of the purchase in 1825 the amount of the produce in hand was 15 cow-hides and a bag of tallow fat.

Two months later Mr. Richard Newton, whose name has been mentioned elsewhere in this book, and who was at that time general "camp" manager for John Gibson and Sons, came to the "Yngleses"—the "Carmen," it was then called—to take over the stock. In the list of stores sent down to him at that date figure gunpowder, two cannons, eight muskets, twenty sabres, lead and stone cannon balls;—in such a belligerent fashion had the stocking of outside lands to be carried on in those early years! He only remained here a few months, returning to take charge of an estancia on the San Borombón river in January 1826. It was at that date that he wrote the letter

which has already been alluded to, in which he speaks of "our plan of paddocks," an idea of dividing the land by means of ditches and rails, which forestalled the introduction of wire fences by twenty years.

The estancia "Carmen," better known as the "Rincón del Tuyu," and since 1835 as "Los Yngleses," is situated in the Department of Ajó, Province of Buenos Aires, in the vicinity of Cape San Antonio. It is bounded on the north by the River Plate, and its east and west boundaries are two creeks which run into the Bay of San Borombón, as this part of the coast-line of the River Plate is termed. Upon the west creek, and ten miles from the mouth following the tortuous windings, is situated the town of General Lavalle or Ajó, founded in 1859, which is well known for its beef-salting factories, the property of Luro Brothers, where they slaughter up to 100,000 head of cattle per year.

The original area of the estancia was 28,356 acres, with a grazing right to all the land contained between the north boundary, the creeks already mentioned, and the River Plate. This was subsequently measured and bought in from Government, bringing the area up to 68,352 acres, of which Government afterwards took back 3300 acres for the township of General Lavalle. Fully 12,000 acres of the northern portion of the estate are useless for grazing purposes; innumerable muddy creeks traverse this section in all directions, rendering it impossible to travel over it on

horseback. This land is clothed with abundant rank vegetation, in which may be mentioned a plant of the *gynerium* family called the "cortadero," whose graceful tall plumes, ascending to a height of over six feet, give beauty to this wild spot. The ostrich (*rhea*), the deer, as well as tiger-cats, 'possums, flamingo, swan, and an infinity of wild-fowl, have made this place their home. The cattle occasionally find their way in, but the mosquitoes and the lack of fresh water—the creeks being tidal, and their water salt or brackish—soon drive them out again. In the days of Governor Rosas this impenetrable spot was the home of more than one deserter or marked man, who by hiding there got to know his way in among the treacherous creeks, and who at night-time kindled his fire in a hole in the ground, lest the vigilant scouts should see the light and track him down.

The nature of the land is low, intersected by marshy lagoons, whose sluggish waters find their way slowly to the creeks and thence to the ocean. These lagoons are passable at all times, and not infrequently dry up. In wet seasons they overflow their natural limits and inundate a considerable portion of the land. Long ridges of sandy uplands, called "medanos," divide these chains of swamp from one another. The land is in many places wooded with indigenous trees, including the "tala," "coronillo," and wild elder. In places under this shade, where the prairie dog has upturned the earth, there are still to be found

porphyry arrow and lance heads, and pieces of ornamented pottery, the relics of a race of nomadic Indians extinct more than two centuries ago.¹ The soil is sandy in the uplands, a shallow covering of black earth in the intermediate lands, and a mixture of clay and sand in the hollows.

The chief grasses on the pasture-land are common and Italian rye grasses, with other ryes of a hybrid class, wild oat, *medicago*² of two classes, including the rich yellow flowered burr-bearing *M. denticulato*, a species of clover, fescues, poas, and minor grasses.

The climate is a mild one, free from extremes of either heat or cold. In summer the temperature seldom passes 90° Fahr. in the shade; in winter it descends during the night to as low as 28° Fahr., but during the day all trace of ice disappears. The prevailing winds during the summer are from the E. and N.E., and in winter from the W. and S.W. The most harmful wind is a sou'-easter. The atmosphere is a humid one, and there are heavy dews all through the year. The average rainfall is 82.65 centimetres, equal to 32.54 inches. A table of the rainfall is appended (pp. 264, 265), by which it will be seen that the fall is well distributed throughout the year. The proximity of the estancia to the sea accounts for the peculiar properties of the grasses, rendering the sheep at all times healthy, and giving a particular lustre to the wool.

John Gibson was joined by his brother George in 1823, and by another brother Robert, a doctor, who

¹ F. Moreno.

² Incorrectly called a trefoil.

came out in 1827 to practise, but who abandoned his profession and joined the others in their business. John Gibson contracted lung disease the same year, and died in Gibraltar in 1828 on his way home. This misfortune, coming as it did at a critical time in the commerce of the River Plate, determined Mr. John Gibson senior to liquidate out of a country which he himself had never visited, and he instructed his sons George and Robert to sell off the lands. By 1834 they had disposed of all the estates except the "Rincón del Tuyu," possibly because this estancia was so far beyond the pale of civilisation that it was difficult to find a buyer. Part of the San Borombón land was purchased by Mr. Richard Newton, and is to-day the well-known "Jagueles." It was in February 1835, whilst on a visit to Mr. Newton, that George Gibson sailed from the mouth of the Salado river and visited the "Tuyu" for the first time. From that year dates the history of sheep-breeding on the "Yngleses."

To go back a decade. From 1825 to 1835 the only business was the breeding of cattle and horses. A list of sales made from the "Tuyu" in 1826 and the prices then obtaining, is interesting:—

1429 steers	at \$14,	equal to 35s.
4400 calves	„ 8,	„ 20s.
184 cows	„ 12,	„ 30s.
121 horses	„ 16,	„ 40s.
50 two year olds	„ 4,	„ 10s.
171 one-year olds	„ 1,	„ 2s. 6d.
119 mares	„ 2,	„ 5s.

The stock numbered about 18,000 head of cattle and 3000 mares. Sheep were utterly disregarded, and kept solely for food. Some were ear-marked, others never entered the yard in their lives, but died with the wool of five or six years on their backs. The whole business of the year was the branding of the calves and foals, and the making up of troops for the market. The cattle were of a small sturdy class, with immense horns, black and dun in colour, and with shaggy coats. Their hides were thick and heavy. They never fattened kindly, and the beef was of poor quality. The horses, on the other hand, were superior to the "creole" of to-day; and whilst the sheep wandered unshorn and the cattle remained unimproved in breeding, the gaucho arose long before dawn to bring up the horses and mares to the yard, there to spend the whole day paring their hoofs, trimming their manes, and devoting all his time and attention to an animal which gave no return whatever. There is nevertheless some extenuation in the fact that these were days of revolutions and turmoil, that the native was continually running away or running after somebody, and that a man ill-mounted was a man undone.

Mr. George Gibson arrived at "Tuyu" on the 15th February 1835. I quote a letter written by him three days later to his brother Robert, then in the city of Buenos Aires:—"The vessel arrived at the mouth of the Salado on Sunday the 8th, but in consequence of a strong wind blowing right into the

harbour she could not get out again till Tuesday morning. We were then kept beating about for two days with a head wind, without being able to make a mile in our course. At the end of that time we got a fresh breeze from the north, which sent us spinning along at a good rate, so that in twenty-four hours we were anchored off the coast of the 'Tuyu,' 4 or 5 miles distant. Here again we were kept three days before we got into the river or creek, waiting till both wind and water answered, as both at once are necessary to get in. On the bar at the entrance there are seven feet of water at the highest tides, and only about a foot at low tide. When we did get in the wind was again contrary for proceeding up the creek; we therefore started next morning in the boat for the berth the vessel usually occupies, about 15 miles up from the mouth, which we reached in about two and a half hours, and landed on the estancia. We despatched a sailor on foot to the steading, but he met Don Mariano (the manager) and a peon, and we soon had horses and left for the station, a distance of 12 miles by the roundabout road necessary to avoid the deep marshes.

"I was highly delighted with the appearance of the woods, which greatly exceed the idea I had formed of them. The term *montes* sounds to me very inadequate and even contemptible to apply to them. They are beautiful, and some of them magnificent, forming many of the finest sylvan scenes I ever looked upon. I will try to describe one of these to you,

which I believe will answer for the others. Imagine yourself to be in the middle of an immense park about two miles in diameter, bounded with fine woods, not in a continuous line but with open spaces here and there forming delightful recesses, these again bounded by more distant woods, and in the centre of these, stretches of open land with fine circular clumps of trees. In the area of this great park are scattered various clusters of timber, under whose shade if the day be hot you will see cattle standing or lying down on the grass. There are also single trees standing here and there. To complete the scene, a herd of deer bounds across before you, from one wood to another."

Farther on, in the same letter, he describes the spot which was to become the home of himself and his brothers for many years; and which is still the head station of "Los Yngleses":—"There is a very fine wood about half a mile in length, with a gap in the centre some three hundred yards long, in which are scattered many single trees, and here the houses are situated. This is the only wood I have had time partly to explore, and I believe the trees in it are perhaps fully as large as in any of the others. In these woods the trees are not all growing in a mass, but as it were in clumps with open spaces between. Here there are many little sand-hills of irregular forms, with large trees growing upon them, which greatly enhances the appearance of the scene. There are some romantic-looking small dells formed by

these same sand-hills, where one can wander along paths sheltered from the sun. Some of these trees have trunks measuring two feet in diameter, and even three feet near the ground. Many have fallen from age, and their huge limbs are now prostrate on the ground. It is so long since I have seen any woodland scenery that I can scarcely believe when I look on these fine woods that it is not a dream."

In Chapter I. there is a description of the first introduction of merinos to the "Yngleses." The flock selected for the first cross with merinos numbered 970 head, and a detail of its composition will show what a small percentage of *white ewes* was to be found in a general "creole" flock.

	50	picked ewes from head station flock.
	140	„ bought of Señor Cordoba.
	50	„ „ Señor Varona.
	440	„ „ in the South.
	260	wethers.
	20	merino rams from Harratt.
	10	„ „ Sheridan.
Total	<u>970</u>	

The picked ewes cost from 2s. up to 3s. 6d. each. The rams cost £2 each.

In 1837 there is a summary made of the returns in the first year and a half:—

Cost of 940 sheep .	\$4400	Produce of common wool, say	\$300
„ 20 rams .	1000	250 lbs. merino wool @ \$1 (7d.)	250
Expenses of keep, say	800	250 sheep-skins @ \$1 . . .	250
		500 wethers @ \$5	2500
		1250 sheep @ \$5	6250
		20 rams @ \$50	1000
	<u>\$6200</u>		<u>\$10,550</u>
Profit on 1½ years .	\$4350		
Add for 500 mestiza ewes,			
worth \$10 instead of \$5	2500		
		<u>\$6850 = 110 % profit in 1½ years.</u>	

This was, however, a somewhat too sanguine calculation, though it serves to show that the journalist had discovered the sheep to be the animal whose return would be the golden harvest of the future.

The wool yielded by the mestiza sheep in 1837 averaged in shearling wethers a fleece of 4 lbs. $3\frac{3}{4}$ oz. of washed wool, and in shearling ewes 3 lbs. 12 oz. of washed wool. The rams gave up to 11 lbs. 8 oz. washed. The common creoles averaged $2\frac{1}{2}$ lbs.

Mr. Robert Gibson had gone down to the “Tuyu” in 1836, and remained there until Mr. Thomas Gibson (the author’s father) arrived, early in 1838, and took his place. The home comforts of the early days were not of an extensive order. A letter written in November 1837 sets forth reasons for building a new wattle hut:—“A gale last month which began at night shook the old *ranch*o to its foundation, and

about 2 A.M. carried off the uppermost layer of thatch or rigging of the roof, leaving me of course in a tolerably uncomfortable plight. There was no remedy for it, however, but to move my bed to the side the wind blew from, and, wrapping myself up the best way I could, to wait for daylight. In the course of a few days we mended the roof with thatch, being covered in the interval temporarily with hides."

The situation of the estancia in the extreme north-east promontory of the Province saved it from many of the Indian raids. On one or two occasions the invasions reached the place, and in 1831 there was a sharp encounter in the head station woods, the carronades and stone cannon-balls proving useful accessories to the defenders. The precursors of such invasions were the natives living farther south in the interior, who came flying helter-skelter with their wives and children before the enemy. They felt safe when they reached the creek, and could, if need be, take boats and run out to sea. One of the bends of the creek is to this day called the "Rincón del bote," because it was a favourite haven with the fugitives. But the Indians were too astute to enter so far into what was almost a peninsula, and where their retreat could easily be cut off. Possibly also the aforesaid stone cannon-balls had acquired deadly fame. The last scare was as late as 1855. The Indians during the Dictatorship of Rosas had received a monthly ration of 2000 mares for food; one month's provision was supplied from the "Yngleses," the price paid per

mare being 2s. 6d. On the fall of Rosas this supply was discontinued, and the Indians began to make inroads. The estancia was barricaded and patrolled at night; the carts and horses were kept ready to beat a retreat if necessary; and the author's mother passed a trying time, prepared at any moment for the savage war-whoops of the invaders. The Indians came within a day's march of the estancia, and then retreated, carrying away with them great droves of cattle and horses. This was the last ever heard of them in the district. They were a more formidable and warlike race than the submissive "Pampa," whom one still occasionally meets in the far south-west.

By 1840 there were over 6000 mestiza sheep on the estancia. The sale of rams to neighbours had begun the previous year. New introductions of merinos had been made, and there was a fine-woolled flock of a fair type already formed. Shearing commenced at the end of December, the sheep being washed twice before bringing them to the yard. A memorandum in an old stock-book shows that not only were the sheep ear-marked, but a small piece of skin was slit down on the nose or cheek, forming what was termed a "button." This fell into disuse very shortly afterwards. Creole wool was still esteemed valueless, for under date 15th Jan. 1840 I find a note:—"Clipped the wethers in the creole home-consumption flock in order to relieve them; wool thrown away." And the following day:—"Clipped 175 in the creole wether flock, more than





GROUP OF RAMS.

half of them black. With the exception of eight ram fleeces, wool all thrown away."

At that time one of the most serious plagues was the *cimarrón* dog. *Cimarrón* signifies wild, savage, uncultured; and these dogs were merely the descendants of tame animals which had been allowed to increase through the indolence of their owners. Once in a savage state, they roamed about in packs, and, though owing their blood to every species of cur, their type became a uniform one, the predominating colour being a tawny yellow. The damage done by these brutes was incredible. Flocks were positively decimated by them. It became necessary to yard the sheep every night. A premium of \$4 on big dogs, \$2 on small ones, and \$1 on puppies, was offered. The journals from 1839 to 1860 are full of records of damage done by the *cimarrónes*. Over 2000 head are registered whose destruction has been tallied and paid for. A few specimens of this wild breed of dogs still lurk in the sea-coast sand-hills some fifty miles south of the "Yngleses." But dogs continue to be the plague of pastoral Argentine. Every country town, every estancia, every hut, is infested with a throng of yelping, useless curs, whose occasional sallies among the flocks work more mischief than the owners of the dogs could repair with five years' hard labour picking oakum—the mildest punishment that occurs to the writer at the present moment. Not only is the monetary loss a matter of importance, but the sight of one or two score of harmless

ewes torn, disabled, and rent to pieces, is sufficient to harden even a dog-fancier's heart against the whole canine tribe. It is strange to note that in spite of the recognition of this plague, a dog-tax of two dollars levied in the Province of Buenos Aires raised such an outcry that it was impossible for the collectors to recover the money; and many of those who protested against the impost had probably lost hundreds of pounds through the destruction wrought by dogs in their flocks.

Pumas were troublesome also in the early years. A premium of \$100 per head was offered for them at the "Yngleses," and by this means they were soon exterminated.

The nearest consecrated burial-ground was at Dolores, a distance of 60 miles. A cemetery was started in the "Yngleses" in 1828, and in thirty years' time it became necessary to make a second one. The burials recorded reach nearly 200. The last interment was in 1876. The register was handed over to the Ajó authorities in 1890, to be archived in the municipal records. An entry made in 1860 deserves special mention:—"Archibald Glover, buried; Scotsman, aged 70 years. He had served in the Peninsular War, and was at the battle of Waterloo."

The shearing continued to be a difficult operation until about 1845. Labour was not easy to obtain, and women and children had often to do the work. This was because the native was either serving in the National Guard at the orders of the Dictator

Rosas, or hiding away from the detachments which were constantly scouring the country in search of recruits. *Apropos* of this scarcity of hands, an incident in 1845 served the estancia in good stead. Rosas had shut the Parana river against foreign flags, thereby occasioning an immense accumulation of hides in Paraguay and the Upper Provinces, and injuring commerce to a great extent. Both the British and French ministers protested against this arbitrary action, but in vain; and at last in 1845 the British minister asked for his passports, and left the country, announcing his action to the English residents. The author's father was down in the "Yngleses," and received the announcement a few days later, but resolved to remain where he was, and trust to the chivalry of the Argentine commander in the south, to leave him in peace. At this time the cattle roamed untended, there being no hands to mob them or brand them, for all the *gauchos* were cantoned and under arms. There was a danger of the stock becoming unmanageable, and the greater part being unbranded, they could be claimed by any neighbour as his own. Mr. Robert Gibson rode down from Buenos Aires to Dolores, and applied to Colonel del Valle, the chief in command, for a picket of men to do the work. Del Valle's answer was a flattering one:—"For your brother who remained at his estancia when his minister advised him to leave the country? Most willingly!" And, ordering the troops to be drawn up in the Plaza, he allowed Mr.

Robert Gibson to select those among them who knew the Tuyu district, and they all left that evening for the estancia, where they executed the branding, and returned to their quarters. Poor Colonel del Valle shortly afterwards fell into disfavour with the Dictator. He died of a fever, and it is reported that his body remained for some time sewn up in a horse hide, before a charitable man was found sufficiently courageous to bury it. Such were the times of terror under which the South groaned in the "forties."

The idea of counting sheep by pulling them out one by one, and tallying them at the gate, has been frequently discounted as a traveller's tale. In 1855 delivery was given to a native shepherd of a large flock of sheep, and the animals were actually counted in this manner. The memorandum of the performance runs as follows:—"Counted out 3952 head, catching them one by one. Thirteen men employed, viz. two overseers, two counters, two shepherds, and seven catchers."

The first mention of scab occurs in November 1845. Apparently this was the first appearance of the disease in the "Yngleses." In 1846, in the month of July, a further note says: "Scab has appeared here again," which would seem to point out that it was unknown until 1845. In 1847 there are directions given for its treatment. In 1849 a bath was constructed, and the sheep were dipped systematically; this was probably the first scab-bath made in

the country. In 1855 a cure recommended by the agent of Prince Dorria of Rome is quoted :—

“Lime with water in the proportion of 7 per cent.
Add grease or oil in equal quantity.
Apply with a rag.”

Scarcely an efficacious remedy. Scab, however, was not at first the deadly enemy it subsequently became. The merino sheep suffered less from the disease, due no doubt to the closeness of its fleece and the greater quantity of defensive yoke in the wool. With the introduction of the long-wool, the disease became propagated with alarming rapidity. It is now subjected, but at the cost of an enormous outlay. In addition to movable dipping plant, there are three permanent baths, varying in length from 15 yards up to 25 yards, constructed with brick and cement, and provided with mixing deposits, boilers, and siphons. The sheep are dipped shortly after shearing; they get a second bath within 12 days of the first, and a third within 15 days of the second. Every week after this the flock is revised by the shepherd, the suspicious animals are separated and dipped at once. Hand-curing is entirely abolished. The bare cost of the dipping stuff per annum varies from £750 to £1000. But so long as Contagious Disease Acts are conspicuous by their absence, and the ragged pet lamb of an idle gaucho strays from a neighbouring field in the township and plays havoc before it is discovered and *removed*,

the expense will incline more to increase than diminish.

It is remarkable to note an allusion to the bronchial or lung-worm so early as January 1846. The general supposition is that the *Strongylus filaria* made its first appearance in this country in 1868. But the note in 1846 is from the hand of Mr. Robert Gibson, who was an M.D., and scarcely likely to make a mis-statement on such a matter. The year 1845 had been marked by an inundation from the south; and a great area of the land had been under water during the winter months. This gives colour to the 1846 invasion of the lung-worm. There is a tendency to ascribe to too recent dates the importation of the epidemics from which the Argentine sheep suffer—if indeed the word “importation” should be used at all. Scab is said to have been brought over from Europe in 1838, and yet so early as 1845 it is found in the remote Tuyu; and the mention of the *Strongylus filaria* in 1846, twenty-two years before the date generally ascribed to its first visit, goes to prove that the later year was rather the one in which breeders first began to notice the cause of a mortality which, previous to that time, they had been content to attribute to *un año de epidemia*,—a year of epidemic; a generic term which embraces all the maladies under the sun, as well as a scarcity of pasture and water.

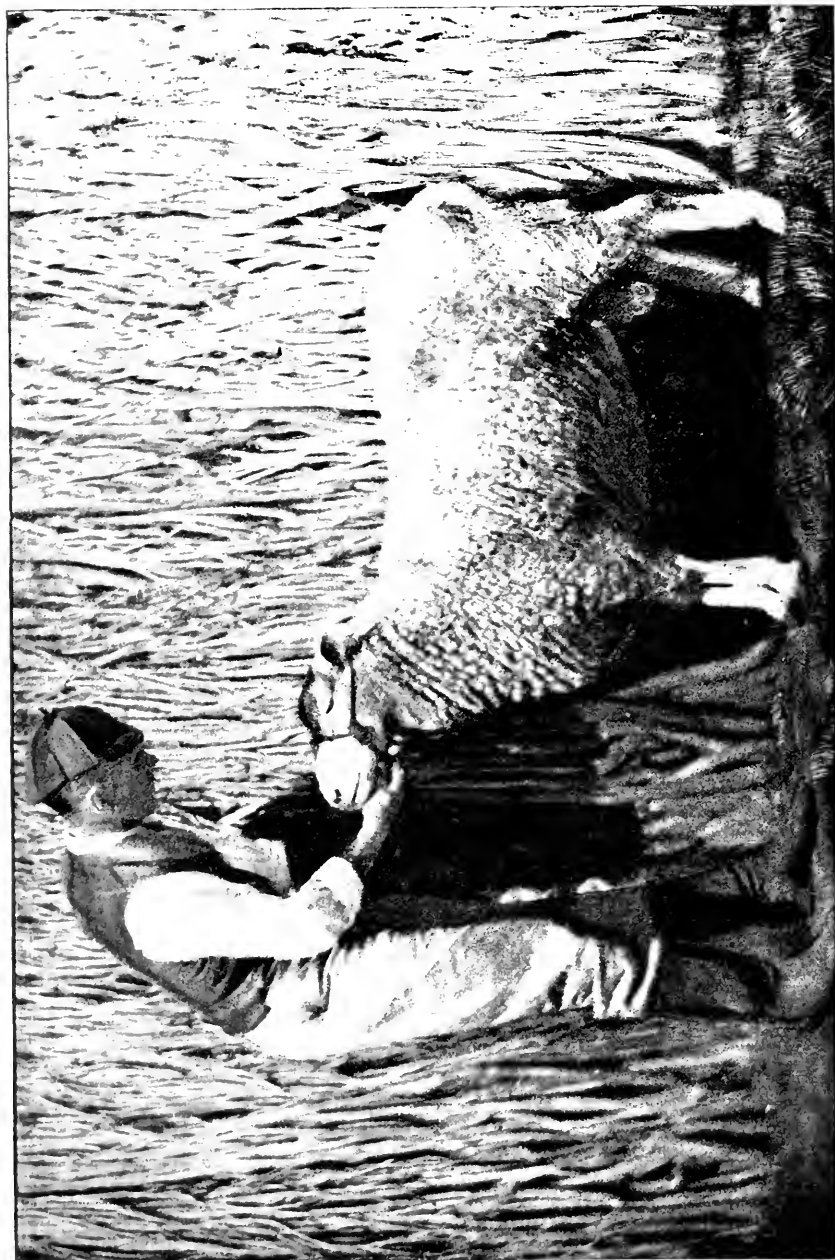
The mention of the 1845 inundation brings me to the subject of the floods which from time to time

have reduced the "Yngleses" to one-half or a third of its normal area. The first record of such an inundation is in 1817, which is mentioned in the weather journal as remembered by the old hands. The next was in 1834. Another occurred in 1845. Again in 1857; in 1866; in 1877; in 1883, 1884, and 1889. The rainfall in the south-east portion of the Province of Buenos Aires, covering an area of over 14,000 sq. miles, finds a sluggish exit through the department of Ajó, by way of the chain of marshes and lagoons which empty themselves into the Ajó Creek. The pendant is scarcely perceptible, and the constant formation of banks and dams, by the deposit of earth and weeds, frequently stops the flow of the currents. The mouth of the creek is impeded by a mud-bank, which adds to the obstacles in the way of the retiring waters. With the accumulation from heavy rain-falls, and the inadequateness of channels of exit, the departments of Ajó, Tordillo, Dolores, and Vecino become inundated. There is a fenometer placed close to the head station of the "Yngleses" which marks the rise of the waters in times of flood; and as each successive inch becomes submerged, it is known that such and such a flock is in danger. Great rafts drawn by horses are in readiness, and these are despatched to float over the sheep to the higher lands. In 1857 little more than the sand-ridges were visible above the water. Over 14,000 head were slaughtered and boiled down in order to reduce the stock and save the remainder. In 1877 the number boiled

down ascended to 20,000 head. Thanks to this recourse, there has never been a loss from flood at the "Yngleses," as the animals crowded out have been converted into tallow and skins. Neighbours, less fortunately circumstanced, have suffered heavily from inundations; and the pitiful sight of sheep eating the wool from off one another's backs has been more than once witnessed in this district. Of late years these floods have been more frequent, and a favourite mode of locomotion is to travel in a boat drawn by a horse. The boundary rider's clothes and saddle are never dry; the girths and leathern gear only last a few months; and travelling is frequently rendered impossible. It may appear a thankless undertaking to breed sheep in a land subject to flood, hemmed in by marshes, so comparatively near the city of Buenos Aires and yet 60 miles from the nearest railway station; but the splendid quality of the grasses and the healthiness of the climate more than compensate for these inconveniences. The sheep fatten quickly, the increase is great, and the wool grown here is remarkable for its lustre and purity.

There is a project for the canalisation of these lands, and, if it is carried out, the danger from floods will become a thing of the past. The rainfall cannot be said to have increased during the past half-century; but it is probably more evenly distributed through the year. There is little doubt also that violent storms are less frequent than they were. A table of





LINCOLN RAM BRED ON "LOS YNGLESES."

To face page 263.

the rainfall at the "Yngleses" for the past thirty-four years is appended (pp. 264, 265).

In 1850 machines were got out from England to remove the burrs from the wool and sheep-skins. The attempt was not successful, and was soon afterwards abandoned. The plant of the big burr (*abrojo grande*) was pulled up everywhere on the estancia, and has never since been allowed to gain foot, though it still infests the neighbouring lands. A similar thing could not be done with the trefoil, which produces the small burr, as this grass is one of the most nutritious on the land.

Lucern was sown first in 1849 and gave splendid results, though it was found to die out if grazed upon all the year round. In 1853 five crops were taken from one field of lucern.

The first wire fence was made in 1853. The posts were placed three yards apart, and only three wires were used, very nearly the thickness of a man's little finger. The cost of the fence was estimated at 7d. per yard. By 1858 several paddocks had been constructed, and part of the boundary fence was made; six wires were employed instead of three, and the cost was estimated at 1s. 8d. per yard. There are now 84 miles of fencing upon the estancia.

Away back in the "thirties" the slaughtering of cattle for their hides and tallow had been commenced. The beasts were driven down to the vicinity of the landing stage on the creek, and there they were killed. The hides were salted, and the tallow rendered down

RAIN TABLE FOR LAST

DISTRICT—AJÓ, VICINITY

(Lat. 36° 31' 12" S. Distance from seaboard, 6 miles.)

Year.	Monthly Rainfall in Centimetres.											
	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sep.	Oct.	Nov.	Dec.
1859	1.84	3.09	5.08	4.48	9.94	3.14	6.22	4.90	6.53	4.73	8.30	1.24
1860	2.05	13.94	17.13	5.11	17.41	15.77	7.54	7.51	3.39	12.29	5.87	2.05
1861	0.18	7.62	2.91	13.73	2.20	1.39	0.73	8.28	2.78	7.85	1.49	1.57
1862	3.00	1.62	12.09	2.53	14.42	21.13	7.44	1.57	2.76	3.03	3.92	6.57
1863	10.12	3.01	4.58	2.78	3.85	13.23	1.77	0.81	6.51	8.00	4.80	5.76
1864	3.92	4.93	1.37	16.70	9.77	14.27	5.41	9.42	6.59	8.28	4.57	17.23
1865	15.73	7.55	8.68	8.28	8.58	13.78	5.92	5.51	5.74	9.54	3.47	4.13
1866	0.64	2.43	3.92	5.61	17.01	4.48	7.44	7.85	5.00	9.87	7.52	3.85
1867	2.04	1.90	5.08	9.37	6.65	2.66	5.92	5.38	1.14	1.77	10.60	5.64
1868	5.05	4.93	19.44	0.51	1.11	8.13	1.17	5.21	11.36	10.98	8.10	7.11
1869	18.31	6.77	6.83	7.72	0.63	...	1.93	...	11.01	5.08	12.90	12.64
1870	5.21	10.88	9.14	8.35	9.74	1.44	3.34	0.63	...	6.45	13.33	1.42
1871	5.33	18.96	18.07	6.12	1.87	15.51	...	6.85	2.83	6.30	3.75	11.34
1872	15.67	6.60	8.00	4.88	4.61	8.56	4.67	13.53	2.20	2.83	8.00	9.06
1873	12.35	5.08	...	7.11	2.23	4.65	...	6.73	4.89	5.81	8.00	5.26
1874	3.77	6.73	5.08	3.04	12.80	4.62	7.52	12.97	10.37	12.12	9.53	1.90
1875	10.12	5.33	1.27	13.00	6.47	1.19	5.33	2.71	2.63	4.98	2.18	3.34
1876	6.70	8.68	13.61	11.72	7.37	9.19	7.16	8.79	1.44	8.08	6.23	4.53
1877	...	4.05	14.70	8.56	14.80	6.57	16.58	7.54	2.15	8.46	5.11	10.90
1878	10.98	1.39	10.75	12.97	5.80	11.23	3.24	2.81	1.77	9.65	8.56	8.38
1879	3.49	6.14	14.75	1.72	10.80	15.56	5.28	1.90	3.17	2.53	6.65	2.18
1880	14.96	5.79	9.06	1.49	5.05	10.25	4.57	3.09	3.75	4.63	10.16	9.06
1881	7.42	3.75	3.21	5.92	1.44	12.32	6.70	4.08	17.59	13.23	5.16	3.03
1882	6.78	3.37	5.13	5.46	2.20	3.01	2.85	11.82	3.24	6.22	6.68	3.84
1883	10.07	0.89	20.12	4.51	6.78	12.90	10.55	5.43	5.69	8.68	7.49	3.67
1884	2.99	1.95	6.02	14.04	0.63	6.02	1.65	5.38	32.08	7.67	3.77	5.46
1885	7.67	16.25	18.83	7.62	7.62	5.94	4.63	4.30	5.41	10.55	7.37	16.37
1886	9.05	1.70	15.72	7.47	4.35	6.65	0.90	1.37	7.74	9.91	2.41	8.63
1887	2.80	10.62	3.68	6.91	...	17.66	2.66	7.31	4.07	8.60	5.13	11.77
1888	11.22	5.76	8.89	13.52	0.91	6.45	13.90	8.90	7.00	6.77	3.91	11.51
1889	31.25	6.58	7.86	8.45	6.17	7.02	8.44	9.85	3.74	1.02	7.86	3.78
1890	5.05	5.72	10.20	8.22	4.45	5.58	11.48	6.53	2.42	2.88	3.51	6.16
1891	6.58	8.62	7.49	1.38	10.08	3.15	7.91	11.36	0.65	12.12	6.93	11.60
1892	4.82	4.03	9.33	1.82	7.41	0.31	6.53	6.34	13.53	12.03	4.10	4.33
Average	7.56	6.08	9.06	7.12	6.62	8.05	5.22	6.08	5.92	7.44	6.39	6.62

THIRTY-FOUR YEARS

OF CAPE SAN ANTONIO

Height of pluviometer above ground, 3 ft. 6 in.)

Total Fall in the Year.	Maximum Register.		Rainy Days in the Year.	Remarks.
	Fall in 24 hours.	Date.		
59.49	5.16	September 8-9 . . .	44	Stormy year.
110.25	8.08	May 12-13 . . .	65	
50.73	4.81	April 11 . . .	44	
84.18	7.21	June 24 . . .	48	
65.42	7.11	January 9 . . .	38	
102.46	7.42	August 28 . . .	52	
96.91	8.30	May 14 . . .	49	
81.62	5.79	May 11-12 . . .	52	
58.15	4.10	May 23 . . .	43	
89.10	6.90	March 4 . . .	53	
83.72	4.51	September 6 . . .	51	} Drought. Snowed in July: first record since 1849.
71.73	6.14	November 14 . . .	45	
96.93	7.06	February 14 . . .	40	} Drought. Snowed in July.
88.61	6.35	August 27 . . .	52	
63.11	5.84	February 16 . . .	40	} Drought. Severe tempest in August; heavy hailstones.
90.45	8.51	August 27 . . .	50	
58.55	5.59	April 26-27 . . .	42	} Drought. Heavy inundation, July to October.
91.50	6.60	March 17 . . .	50	
89.42	7.36	May 3 . . .	70	} Drought. Inundation, August to September. Inundation, September to October.
87.53	5.74	April 27-28 . . .	68	
74.17	5.59	May 18 . . .	50	} Drought. Inundation, August to September. Inundation, September to October.
81.86	6.50	November 9-10 . . .	64	
83.85	10.17	September 12 . . .	66	} Drought. Inundation, August to September. Inundation, September to October.
60.60	3.79	August 4 . . .	54	
96.78	4.42	October 16-17 . . .	71	} Drought. Inundation, August to September. Inundation, September to October.
87.66	14.98	September 21-22 . . .	54	
112.46	6.99	March 22-23 . . .	82	} Drought. Inundation, August to September. Inundation, September to October.
75.90	5.85	October 20-21 . . .	53	
81.21	7.25	February 17 . . .	67	} Drought. Inundation, August to September. Inundation, September to October.
98.74	5.86	April 9-10 . . .	100	
102.02	6.67	January 8 . . .	82	} Drought. Inundation, August to September. Inundation, September to October.
72.20	3.52	May 1 . . .	88	
87.87	4.65	December 2 . . .	89	} Drought. Inundation, August to September. Inundation, September to October.
74.58	4.40	October 25-26 . . .	72	
82.64	14.98	Sept. 21-22, 1884 . . .	58	

in a huge caldron suspended by chains from shear legs. On this spot the town of Ajó was afterwards built. The boiling down of sheep was commenced at the "Yngleses" in 1843, the same year and the same month as the industry was started in Australia, a coincidence already noticed elsewhere. A trial was made in this year with 432 wethers, and the results were satisfactory. By 1848 boilers had been brought from England, and boiling down became almost an annual institution. Those were the days when tallow was as high as 60s. per cwt., and an average wether netted from 12s. to 13s. The weight obtained from each animal varied from 21 lbs. up to 30 lbs. of melted and refined tallow. From 1843 to 1893 the total number of sheep boiled down at the "Yngleses" reaches 191,120 head. But since 1881 the industry has become a thing of the past; tallow has fallen down to 20s. or 21s., and the demand for frozen mutton has made a new market for surplus bleaters. The head station has for its rainwater deposits the boilers which have served their time in the grease department; others have been relegated to the dipping plant for heating the curing stuffs. In 1858 a boiler stuck on its way up from the creek to the head station; it was a new one and heavy, and the roads were muddy and half flooded, and the boiling down for that year was about over. But if it would not serve for one thing, it served for another. A flock of sheep was sent to where the boiler lay neglected, and the shepherd and his wife took up their abode in this

novel dwelling, put up a division in the centre of it, and pronounced it a most comfortable home. The following spring the boiler was brought up to the head station ; but the flock and its shepherd remained, and a hut was built to take the place of the iron nest where this Argentine Strephon and Chloe had passed the winter. The sub-station retains its name of "*El Tacho*" (The Boiler).

To return to the sheep-breeding and the merinos. The number in 1844 reached 12,000 head. This was followed by the flood of 1845 and the lung-worm invasion, and the following shearing season saw the stock reduced to 7000 head. Again the number increased. In 1850 there were over 14,000 head, and in 1855 they numbered 23,000 and odd. The flocks, which in 1835 were only two, had reached the number of fourteen twenty years later.

The stock had improved proportionately. Nearly every year a large consignment of Saxony tups were brought from the Sheridan and Harratt studs. In 1842 a pure Saxony stud flock was formed, seven ewes and four rams of that breed being purchased. This little nucleus reached 80 head by 1846, and 300 head by 1851. The sheep were still washed before shearing them, a dam being made in a narrow strip of water which linked two lagoons. In 1848 the fleeces, which had hitherto been tied with jute twine, were rolled up and roped with a twist of wool drawn out of the neck of the fleece. This plan was abandoned in a few years, though it is curious to note that again, at

the present time, it is proposed to tie the fleeces in the same manner. The little shreds of jute twine give the manufacturers considerable trouble to remove, and some are actually worked up into the cloth.

In 1849 the first baling press was erected, and on 16th November the first bale was turned out, the weight being 566 lbs. of washed wool. The exportation direct to Liverpool proved a success, and by 1853 the wool-mark of the "Yngleses" had acquired a good name with the home buyers. The brokers, in reporting the sale for that year, wrote out: "The condition is very good, and generally without much burr, doing you much credit. The high valuations will doubtless induce you to keep up the character your wool-mark has acquired." In 1850 unwashed mestiza wool sold at $5\frac{3}{16}$ d. per lb., and washed mestiza wool at $10\frac{1}{16}$ d. per lb. Calculating the amount of dirt washed out at 25 per cent of the gross weight—a figure arrived at by shearing 200 sheep, half of them washed and half dirty—a gain of 45 per cent was made upon the washed wool.

In 1851 all the remaining sheep of a creole type were collected and sold off, and the general stock from that date was classed mestiza-merino. The stud flock did not supply a sufficient number of first-class rams for the home service, and one year as many as 200 Saxony rams were bought from Mr. John Hannah, who was now breeding grand animals in his estancia "Carmen," to-day the "Negrete." Nevertheless, rams were bought from the "Yngleses" by neighbouring

breeders, and the total number sold from 1839 to 1856, being the period in which Saxony sheep formed the "Tuyu" stock, amounted to 632, at prices varying from 12s. up to £3.

Stock prices varied considerably during these twenty years. The following quotations have been all reduced to English money, making due allowance for the fluctuations in the depreciation of the paper currency :—

	Breed.	Wethers.		Mixed ewes and lambs.	
		<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
1835	Creole	2	6	2	3
1839	Mestiza-merinos	2	3	3	6
1842	Do.	2	0	2	3
1845	Do.	1	6	1	3
1849	Do.	2	0	1	6
1852	Do.	3	0	1	10
1854	Do.	3	8	4	2
1856	Do.	5	0	6	6

Between 1851 and 1853 stock had risen 100 per cent in price. Sheep-breeding had become general; wool was selling at a high price; and there was an ever-increasing demand for wethers for the boiling-down establishments, which were now scattered throughout the then pastoral area of the Province of Buenos Aires.

As the wool improved in quality, so the weight of the fleece augmented. In 1839 common fleeces averaged $2\frac{1}{2}$ lbs. washed wool; rams' fleeces varied from 5 up to $7\frac{1}{4}$ lbs. In 1840 the average of rams'

fleeces was 6 lbs. ; special animals gave up to $11\frac{1}{2}$ lbs. In 1845 common fleeces averaged $2\frac{3}{4}$ lbs. ; ewes in the good mestiza flocks gave $5\frac{1}{4}$ lbs. ; rams gave from 7 lbs. up to 13 lbs. In 1850 the fine flock gave an average of $4\frac{1}{2}$ lbs. all over. In 1861, 38,647 head averaged 3 lbs. $4\frac{2}{3}$ oz. ; and in the following year 41,000 head gave an all-round average of 3 lb. 7 oz. The price paid to shearers varied from 3s. 6d. to 4s. 2d. per hundred animals ; an extra shilling per hundred was paid for shearing rams. The work was entirely done by natives, women and children being largely employed. There was a scarcity of labour, which rendered it difficult to finish the shearing in season. In flood seasons rafts and canoes were sent long distances to bring the women and children to the head station. Though the price paid for shearing appears low, it was a high figure in those days ; money was scarce and wants were few. The natives wore home-made clothes ; their boots were the raw untanned hide removed from the fore-legs of a horse. They ate nothing but meat ; they drank nothing but *yerba-mate* (Paraguayan tea). A handful of raisins and walnuts, and a bottle of thin French wine, constituted a feast ; and a bottle of gin and a guitar warranted a dance.

The first change in sheep-breeding at the "Yngleses" dates from 1856. The delicacy of the Saxony merinos had long been the occasion for comment in the Stock Journal. The mortality in the lambs was always a heavy one ; foot-rot was ever present ; and it was

apparent that neither soil nor climate was well adapted for the merino breed. On the other hand, the fine-woolled sheep was the only one bred in the country, and it required considerable courage to set aside the advice of experienced Argentine breeders, and introduce an entirely different class of sheep in the days when combing wools were at low prices and mutton was almost valueless. The contention whether it was preferable to breed the ultra-fine wool of the German Negretti, or the medium staple of the French Rambouillet, was at its height; and the introduction of a sheep whose wool was of a class totally different from the coarsest Rambouillet, and the mixture of them with stock which by this time had acquired a good merino type and considerable notoriety in the country, appeared an act little short of madness. But the cuttings taken here and there from papers, which referred to the English long-wools, and the notes of the fleece and mutton returns from the Improved Leicester and the Romney Marsh which I find in half-forgotten scrap-books in the estancia office, clearly indicate that the breeders were studying the advantages and difficulties in starting a new breed of sheep, and one at that time entirely unknown in the country. The remarks on the popularity of the merino will explain the time which elapsed between the first introduction of long-wools and the date when it was decided to breed no other sheep than the Lincoln—a period of seven years, during which not only were seven different English breeds tried, but merinos

continued to be bred, and valuable importations of this class of stock were made.

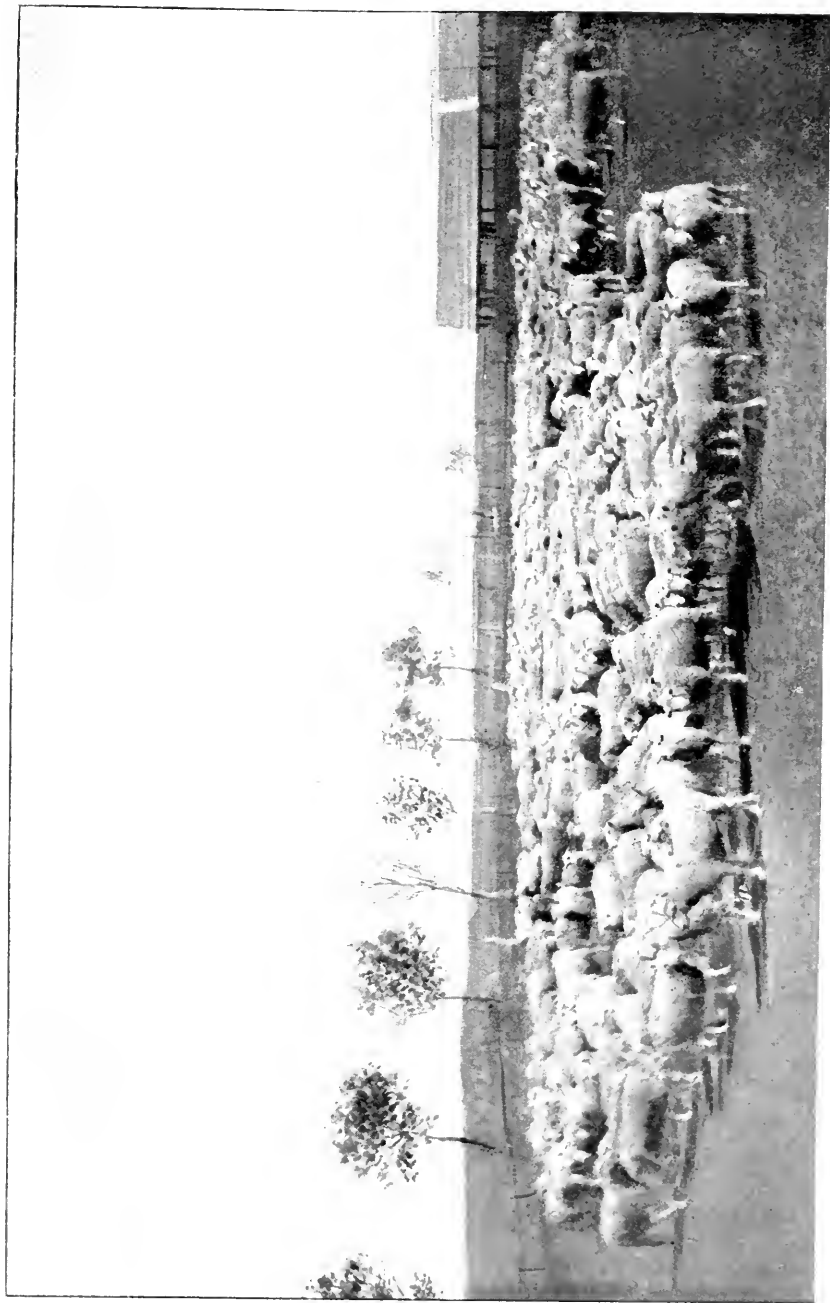
Early in 1856 Mr. Robert Gibson visited the Romney Marsh district, and was struck with the similarity between the low-lying swampy ground he saw there, and the "Tuyu" lands. The sheep pleased him, and he observed their healthy condition, so different to that of the sore-footed delicate Saxonies. These remarks were the subject of a letter he wrote to his brother at the "Yngleses"; and he speedily followed up this with a remission of seven ewes and four tups, all of the Romney Marsh breed. Of these only one ewe and the four rams arrived and were brought to the "Yngleses" on the 1st of December 1856. Another lot of seven ewes and five rams was more fortunate, and they all arrived safely on the 28th of March 1858. The ewes formed the nucleus of the first long-woolled flock, and the rams were put to a flock of merinos of good class. The first cross-lamb was born on the 5th of May 1857; and by the 4th of December of the same year a flock of 280 Romney-Saxony cross hogget ewes had been formed. The 10th of June 1858 is marked in the Stock Journal with one of those events which might well render the breeder desperate:—"The first three pure Romney Marsh lambs born were worried to death by wild dogs." By 1860 the first eight imported ewes had died, seven having been killed by dogs. In August 1859 there occurs the remark:—"The Romneys are so fat that we have to yard them every night, and

part of the day." On 20th September 1859 the Romney Marsh stud flock was brought from the sub-station where it was first kept, and kept in two small paddocks at the head station. It was called the *Potrero* (paddock) flock, a name it retains to-day. Until 1861 it was served by Romneys, and from that date it has been served by Lincolns until now. It is the present stud-flock of the "Yngleses." In 1860 there is a note given of the wool return; one ewe gave a fleece of 15 lbs. weight, the animal having been grass-fed on the natural pasture like all the rest. 1857 was marked by one of the heavy floods already alluded to, and it is worthy of note that not one single cross-lamb died from the inclement weather.

In 1862 both Cotswold and Improved New Leicester (College Cirencester) tups were imported from England. And the same year, a little later on, the first Lincoln was imported, with another lot of Romneys and Leicesters, at the instigation of Mr. Platten, Sedgeford, Norfolk, who purchased all the sheep for the "Yngleses," and who added the Lincoln, with the remark:—"I send you a Lincoln with this lot of ugly long-backed Romneys, of which you appear to be so fond, as I wish you to have at least *one good sheep* upon your place." Mr. Platten was correct in his opinion. The Lincoln made a better cross with the merinos than the Romney. In 1863 a large number of Lincolns were ordered from home, followed by two more lots in 1864, and a succession of importations of the same breed every year.

But experiments with other breeds were made. Shropshires, Cheviots, and Highland Black-faces were imported, to be discarded again immediately after arrival. Lincoln tups were put to the Romney Marsh stud and other flocks, and the same breed, which has to-day become the fashionable long-wool all over the world, continued to be produced on the "Yngleses" up to the present time.

But, as has already been remarked, it took seven years to convince the breeders that long-wools were more profitable sheep than merinos on the "Tuyu" lands. In 1856 three tups, whose prime cost was £50 each, were imported from the Imperial stud of France. Three years later an important purchase of sheep was made from Mr. John Hannah, consisting of sixty pure selected Saxony ewes. To these was put a high-class German Negretti, brought from the famous Gilbert stud. The period from 1856 to 1864 was indeed one of transition; and, at the same time, there were no less than ten different breeds of sheep on the "Yngleses," all kept carefully separate, and their various crosses were the subject of voluminous notes and comparisons. The result of this species of competitive examination was all in favour of the Lincoln, and in 1865 every remaining merino tup was castrated, and nothing but Lincoln tups were left in the flocks. The few crosses from the Shropshires, Cheviots, and Highland Black-faces were boiled down and consumed. The history of the breeding of the "Yngleses" stock may therefore be divided as follows:—



GROUP OF SHEEP BRED ON "LOS YNGLESES."



1835-1856—Merinos, chiefly Saxonies.

1856-1865—Romney Marsh, Lincoln, Cotswold, and Improved Leicester.

1865-1893—Lincoln.

In 1863 a successful experiment was made with "Pampa" sheep. Five thousand selected ewes of this breed were purchased and brought to the "Yngleses" to be crossed with Lincoln tups. The Pampa sheep is descended principally from the long-woolled Spanish sheep, brought over by the conquerors in the sixteenth and seventeenth century, and is not to be confounded with the *creole*, which is descended from the old Spanish merino, interbred and degenerated. The Pampa sheep was superior to the creole, though both were semi-wild animals half a century ago. The former had a white face, thin long legs, long white wool coarse and lustreless, the belly and often part of the neck bare, and generally with horns. Nevertheless they had sufficient of the type of the long-woolled English sheep to justify an attempt to improve them by crossing with Lincolns. The experiment was in every respect a successful one. The cross-Pampas soon grew to the large body and lustre wool of the Lincoln. The ewes were prolific and excellent mothers, and the race hardy to a degree; they were kindly fatteners and easily shepherded. The sheep of this origin are always kept separate from the other stock, and no ewes from them are drafted into the Lincoln-merino flocks. Tups have never been bred in them, and so there is no danger

of a mixture of blood which might prejudice the other sheep. Even to-day they have a special type: their wool is remarkably long, white, and silky; the bone is rather fine, though the body is big. They are kept on the marsh lands, and no amount of water seems to affect them. They are often to be seen in mid-winter immersed in the flooded swamps to their bellies, and feeding on the vegetable matter and tops of the long grass as contentedly as though on the finest and driest pasture land. There are at the present time eight flocks of this breed on the "Yngleses," numbering in all about 14,000 head.

At the time of the decision in favour of the Lincoln sheep, viz. in 1865, the division of the flocks and their breeds was as follows:—

- 1 Saxony Merino Stud Flock.
 - 1 Rambouillet Stud Flock.
 - 1 Romney Marsh Stud Flock.
 - 1 Lincoln Stud Flock.
 - 25 Mestiza-Merino Flocks.
 - 9 Long-wool Cross Flocks.
- Total—38 flocks, with 58,524 head.

The sheep were tended by men who shepherded them on a profit share. A good number of these men were Scotch and English, having come out contracted for at home. They received a number of animals varying from 1200 up to 1800, and they got a third share of the increase, wool, skins, and tallow. They paid their own expenses and a third of all labour in connection with their flock. They had a house, a

garden fenced in, a few horses, milch cows, pigs, and poultry. Many of them have since become flock-masters themselves. The same system is observed to-day, although now the profit-sharer is not permitted to remove his share of the increase, but is paid for it at a fixed rate. In lands where a paddock system is impossible the shepherd who tends his flock on a profit share will do his work more thoroughly and conscientiously than a hireling, and if he earns a large sum of money one year, it is because his employer has made a proportionately larger one.

With the introduction of the long-wools the washing of the sheep before shearing ceased to be practised. It was found to be no longer necessary or convenient, and the number of the stock had increased so much that it would have been well-nigh impossible to have washed them all, running water not being attainable except by artificial means.

In 1862 Mr. Thomas Gibson gave up the local management and retired to Scotland. He was succeeded by Mr. George Corbett, his brother-in-law, who arrived in 1857, and under whose capable administration the sheep continued to improve in type and returns. Mr. Corbett retired to his own estancias in 1884, handing over the management of the "Yngleses" to Mr. Ernest Gibson and his brother, the author. The sheep-breeding traditions have never been changed or lost, for as Mr. Corbett was the pupil of Mr. Thomas Gibson, so in turn the present managers served their apprenticeship under him. Though Mr.

Thomas Gibson has continued to reside in Scotland since 1862, he has made many visits since then to the Argentine, and he still keeps himself in close touch with the administration of the "Yngleses." Changes and improvements are made under his direction, and he is as familiar with the daily work as though resident upon the run. His brother George died in 1879, and his remaining partner, Robert, in 1881.

With the introduction of Lincolns there came a marked improvement in the size of the cross stock. The wool from the Lincoln-merino sheep was of a fine quality, long in the lock and well serrated, and it commanded a high price in the market. Foot-rot, which had been the scourge of the place for thirty years, gradually disappeared. There was a better increase in the flocks, and the mortality in lambs was diminished. For a number of years it was impossible to dispose of the increase by sale, as the country still limited itself to the merino. Fortunately tallow was still at a high price and sheep-skins sold well; and by boiling-down the surplus stock was disposed of at a fair figure. The first sale of Romney Marsh rams bred on the place was effected in 1860, when six were sold to Don Saturnino Unzué at £1:15s. each. But the demand continued to be small for a great number of years, and even local breeders who could see and appreciate the improved returns from the new class of sheep, inclined but little to introduce them into their own flocks. The white face, long lock, and clean legs of the Lincoln reminded them of the half-savage

“Pampa,” and so they were called by the natives. Such is tradition that even now the “*Potrero*” stud flock, founded nearly forty years ago with pure Romneys and Lincoln tups, is called by the hands—and not unfrequently by the owners themselves—the “Pampa flock.”

The necessity to boil down the increase afforded an opportunity of culling the flocks every year of the most inferior types of sheep, and the result was that not only did the stock change rapidly from a merino class to long-wools, but the general standard was raised every year. This is best demonstrated by the accompanying table, showing the changes effected in twenty-five years in the wool-classing by the introduction of Lincoln blood.

The increase in the stock became more marked with the diffusing of a long-wool strain through it. The counts at the gate of the shearing yard from 1835 to 1883 show how the estancia had filled up with sheep:—

1835	.	.	.	1540	head.
1840	.	.	.	6280	„
1845	.	.	.	7150	„
1850	.	.	.	14,323	„
1855	.	.	.	23,345	„
1860	.	.	.	32,318	„
1865	.	.	.	58,524	„
1870	.	.	.	58,463	„
1875	.	.	.	66,763	„
1880	.	.	.	92,170	„
1883	.	.	.	100,077	„

In 1884, in accordance with a new law of the

Province of Buenos Aires to the effect that every township should have an area of not less than three square leagues, to be divided into small lots for cultivation, 20,016 acres were expropriated by Government from the estate, cut up into blocks of 125 acres each, and sold by auction to the inhabitants of the small town of Ajó. This reduced the area of the run to 45,036 acres, divided into two almost equal portions by the expropriated land which traverses the estate from west to east. Of these 45,000 acres, 36,000 are grazing land and the remaining 9000 are useless. From 1884, therefore, the sheep stock became reduced, the number varying now from 70,000 to 75,000 head.

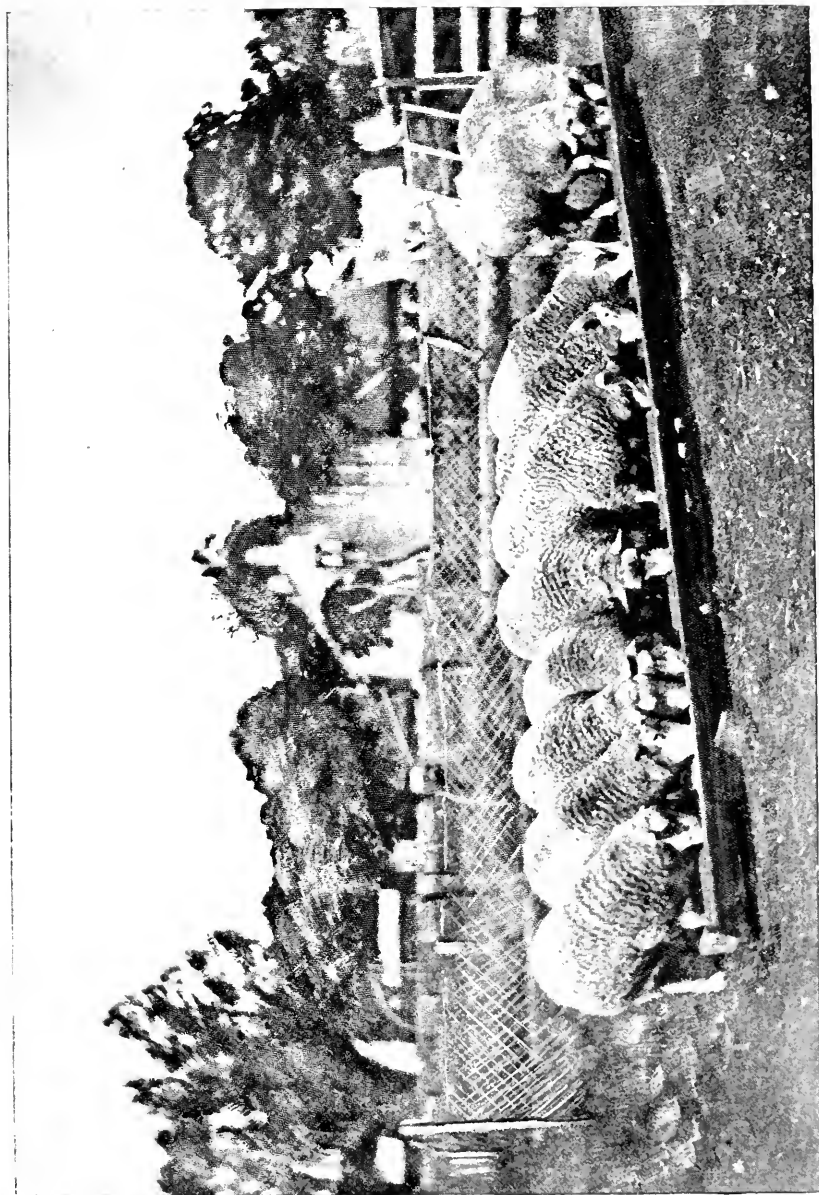
Up to 1882 the demand for Lincolns continued to be small. But at that date a marked change took place in the tendency of the Argentine breeders. The merino stock throughout the south of the Province gave poorer returns; mortality increased; fine wool fell. Then there came the institution of freezing mutton and sending it home to Europe for sale. This was a further blow for the merinos, the wethers of that breed being underweighted and comparatively valueless for the freezer. The demand for Lincolns set in. It has increased steadily since then, and even now, in 1893, there is no abatement apparent in the rush after long-wools. This new market, together with the freezing trade, solved a problem which was threatening to become a serious one for the "Yngleses." Tallow had fallen to 23s.

the cwt., and the boiling-down trade was no longer the remunerative business it had been. The boilers were no longer necessary, and the surplus increase was sold to breeders and freezers as soon as it came into the market.

A table of ram sales will show the change in this respect. The following figures correspond to the entire turn-over in rams at the "Yngleses" from 1839 to 1892 :—

Year.	Price.	Merino.	Saxon.	Rambouillet.	Lincoln.
1839-1856	12s. to £3	632	...	...	...
1856-1865	£1 „ 7	...	456	...	...
„	2 „ 5	...	...	87	...
1862-1870	1 „ 8	...	...	...	196
1870-1874	1 „ 8	...	...	...	833
1874-1878	1 „ 40	...	...	...	434
1878-1882	1 „ 40	...	...	...	1,711
1882-1888	1 „ 40	...	...	...	5,039
1888-1892	1:10s. „ 45	...	...	...	4,751
		632	456	87	12,964

The amount of fine stock introduced to the "Yngleses" reaches in all 1174 head. Most of these were merinos. The following list shows the classes and numbers :—



GROUP OF RAMS BRED ON "LOS YNGLESES."



Breed.	Occasion.	Date.	Number.
Merinos and Saxones, chiefly from the Electorate . . .	23	1835-1859	755
Rambouillet from the French Imperial stud	2	1856-1859	7
Negretti from M. Gilbert's stud	1	1859	1
Romney Marsh	5	1856-1863	74
Leicester	1	1858	5
Cotswold	1	1862	5
Cheviot	1	1864	20
Highland Black-face	1	1864	30
Lincoln	15	1862-1893	274
Shropshire	1	1864	3
	51		1174

To complete these notes upon increase, sales, and purchases, I append a table showing an extract from twenty-five years' stock movements, which serves to establish the percentage of lambing, mortality with home consumption, and realisable increase. Condensing the totals of capital and those of sales, removals, and boilings-down, we arrive at the following interesting summary:—

1835.	Capital of sheep	940
1835-1892.	Introduced at various dates	1174
„	General stock bought at various dates	6730
	Total	<u>8844</u>
1835-1892.	Sold in rams at various dates	14,139
„	Sold in general stock at various dates	333,732
1843-1889.	Boiled down	191,120
1874-1892.	Removed to various estancias	41,540
1892.	Present count	75,000
	Total	<u>655,531</u>

TABLES SHOWING LAMBINGS, MORTALITY, AND INCREASE DURING 25 YEARS, 1868-1892.

	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
Lambing per cent . . .	40.3	39	42.5	48	42	39.8	29.5	48	41.3	43	49.5	50.2	39
Mortality and home consumption per cent . . .	16.5	14	15.3	15.8	15.5	28	23.8	16	18.5	24.8	15.5	14	18.5
Actual increase per cent	21	22.7	26	31	23.5	24.3	19.5	28	20	16.7	33.8	35.7	18
No. of head sold . . .	3,388	266	1,487	2,592	2,980	1,291	5,304	128	1,637	6,876	11,191	15,645	19,883
No. of head boiled down	19,775	10,065	13,223	16,711	5,584	11,515	14,615	..	8,866	19,729	2,069	9,283	10,262

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.
Lambing per cent . . .	38.8	49	46	50	42.8	51	45.4	42.8	46.4	44	43.4	44.5
Mortality and home consumption per cent . . .	19	18.8	17	17.5	18.5	16	17	17.2	28.4	16	20	14
Actual increase per cent	21	35	29	34	26	32	28.2	25.7	18	27.8	24.3	29
No. of head sold . . .	11,142	19,313	27,655	26,017	21,011	28,058	17,395	12,373	12,336	32,368	16,703	15,610
No. of head boiled down	3,170	..	..	..	2,109	..	..	..	3,932	..	..	..

NOTES.—The lambing represents the actual percentage of lambs marked.

Mortality includes deaths in marked lambs and home consumption.

1873-74.—The Mitre Revolution occurred, and the troops were fed for a considerable time on Yugloeses mutton and beef.

1877.—The flood this year occasioned some loss. 1889.—Bronchial worm invasion.

Average lambing per cent . . . 43.9

“ mortality per cent . . . 18.2

Average increase per cent . . . 26

“ turn-over per annum . . . 18,568 head.

The weight of wool has augmented considerably. In the past ten years the following has been the average return from, say, 70,000 sheep:—

1883 . 5·14 lbs.	1888 . 6·12 lbs.
1884 . 4·95 „	1889 . 5·34 „
1885 . 4·94 „	1890 . 6·45 „
1886 . 5·28 „	1891 . 6·32 „
1887 . 6·05 „	1892 . 6·03 „

The wool is very clean, and washes out from 58 to 65 per cent of scoured wool, ready for the manufacturer.

The “Yngleses” wools have been awarded prizes at many of the local and continental exhibitions, among which may be mentioned the Cordoba Exhibition in 1871, when sheep from this place took the only prize awarded to long-wools; the Buenos Aires Exhibition in 1875, when a silver medal was awarded for wools; the Paris International Exhibition in 1889, when a silver medal was awarded for wools; and the Buenos Aires International Exhibition, when the “Yngleses” carried off the first prize for long-wools. A large exhibit of fleeces, locks, and sheep-skins has left this year for the Columbian Exposition.

To summarise the stock-carrying capacity of the land and values of stock and produce:—

Stock-carrying capacity of the land.

Sheep . . .	75,000 heads
Cattle . . .	15,000 „
Horses and Mares	8,400 „

Area, say 36,000 acres.

Being the equivalent of 2·75 sheep per acre.

Sheep.

Realisable increase per annum . . .	26 per cent.
Value of shearling and two-shear wethers .	12s. to 15s.
Value of culls and aged ewes . . .	10s. to 12s.

Wool.

Return per head, average of 3 years, 1890-92 . . .	6.28 lbs.
Value of 1st Lincoln this year in Liverpool, 8d. to 8 $\frac{1}{4}$ d. p. lb. unwashed	
„ 2nd „ „ „ 8 $\frac{1}{4}$ d. to 8 $\frac{1}{2}$ d. „ „	
„ 3rd „ „ „ 8d. to 8 $\frac{1}{4}$ d. „ „	

The number of flocks at present on the “Yngleses” is forty-six, with a total number of head of about 75,000. All these sheep are of a Lincoln type. They are, with few exceptions, shepherded, it being impossible to introduce the paddock system into lands of the character of “Los Yngleses.” The shepherds are all paid on the profit-share system.

The type of sheep aimed at by the breeders is one of smaller size than the English Lincoln, and carrying a finely-woolled fleece, lustrous lock, and bearing the same character of wool all over the body, the legs and face being almost as much covered with wool as the merino. The stud flock is composed of eighty to a hundred ewes, and is served by tups occasionally imported from England and sometimes bred on the “Yngleses.” This stud was only formed seven years ago, the ewes having been selected from the “Potrero” stud, which was founded, as already stated, in 1859. Ewes in this small stud give up to 21 lbs. of fleece wool. Here are bred the rams which serve in the first four high-class flocks. In these four are bred

the rams for service in the remainder of the flocks. Of the four, that of the "Potrero" ranks highest, the following two being nearly equal to it in type. The fourth is a new stud formed entirely by selection with a view to stamp the special qualities aimed at by the breeders. The four number in all 5500 head, and there are ewes in all of them which give up to 17 lbs. of fleece wool. The weight of ram's fleeces, from animals bred on the place, varies from 16 up to 24 lbs. There are eight other first-class flocks in which the ram progeny is reserved for sale, and a few for service. These flocks are but little behind the first mentioned four in type, and to the general observer there is no difference apparent between them. The introduction of Lincolns in 1865 having extended to all the flocks, and the system of culling having been strictly observed since then, it is not surprising that the same type runs through all the stock. It is curious to observe that occasionally a lamb is born with all the points of a Romney Marsh, though fully ten generations must intervene between the animal and the original Romney blood; and sometimes the light colour of a sheep's eye indicates an atavism throwing back to the merino blood of the "fifties."

The lambing season commences in the month of June, and lasts until the end of August. This corresponds to the months of January to March in the Northern Hemispheres. The shearing takes place in October and November, corresponding to April and May at home. The wethers are sold in December,

January, and February, at the age of eighteen months, and give from 58 to 70 lbs. of dead mutton. The remainder of the increase is disposed of in sales of rams to other breeders, and culled ewes to the butcher.

The run is administered from two head stations situated at the two ends of the land. The first of these, which lies to the south, is the original old stading dating from 1810. It includes the boiling-down department, the wool and baling shed, skin shed, carpenters' and coopers' department, general and private dwelling-houses, dipping plant, yards, fields of lucern, and twenty acres of garden and orchard. Its surroundings are but little changed since 1835, when Mr. George Gibson described them; the woods are still extensive, but in among the indigenous trees have sprung up "ombues," eucalyptus, and other imported species. In the depth of winter and early spring the ground underfoot in these woods is carpeted with violets, brought many years ago from home, which have taken kindly to their new country. The stud stock roams at pleasure under the trees, and now and then a tame ostrich stalks leisurely into the open. There is little here to remind one of the general flat and uninteresting character of the Pampa; the landscape is broken with the distant woods; the trees are full of singing birds, and from the lagoons surrounding the station come the cries of the waterfowl and the deep note of the black-necked swan and "chaja."

The formation of the north head station has been made necessary by the extension of the township of Ajó, which now divides the run into two sections. Here the pasture is better than at the old steading, and this is taken advantage of for the preparation of the sale and service rams. These are brought from the flocks when weaned, and the annual turn-over is little short of 2000 head. They are placed in various paddocks according to their grades, and during the winter they receive extra forage, principally chopped lucern. There are sheds for shearing, wool storing, etc., and the steading covers in all some fifty acres, exclusive of the paddocks. In order to increase the supply of forage, lucern is being rapidly laid down, and the crops are stacked and part turned into ensilage.

For the home consumption of the stock there are 450 acres under cultivation on the "Yngleses," lucern and maize being the principal crops produced. Lucern thrives exceedingly well, and has been known to last as long as twenty-five years without re-sowing. Maize also does well, and gives from 2500 to 3500 lbs. per acre. Both this cereal and lucern are employed to provide the more valuable stock with winter supplementary forage. Though this district is not adapted for agriculture as an independent industry, the cultivation of a portion of the soil for laying in a store of winter fodder has been found to give a profitable return. For the purpose of supplying dipping material for the sheep, tobacco has also been grown

at "Los Yngleses." The crop gathered from a small enclosure gave 10,000 lbs. upon one occasion, and the dried leaf, used in the proportion of one pound to four gallons of water, had a curative effect upon the scab. The soil is capable of growing all the vegetable produce necessary to an advanced system of stock-breeding.

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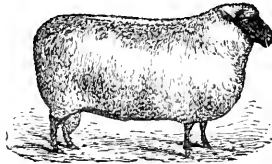
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It is now used on 100 millions of sheep annually, or more  
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1st. **EFFICIENCY.**—Each 15 lb. **HIGHLAND SHEEP DIP** equals in strength 10 lb. Yellow Powder Dip, and 2 gallons Soluble Fluid Dip, combined. The guaranteed formula of the composition is printed on every package.

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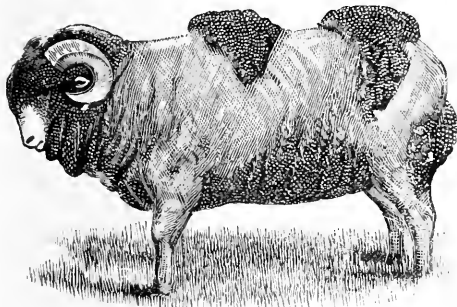
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Is a true specific for Scab  
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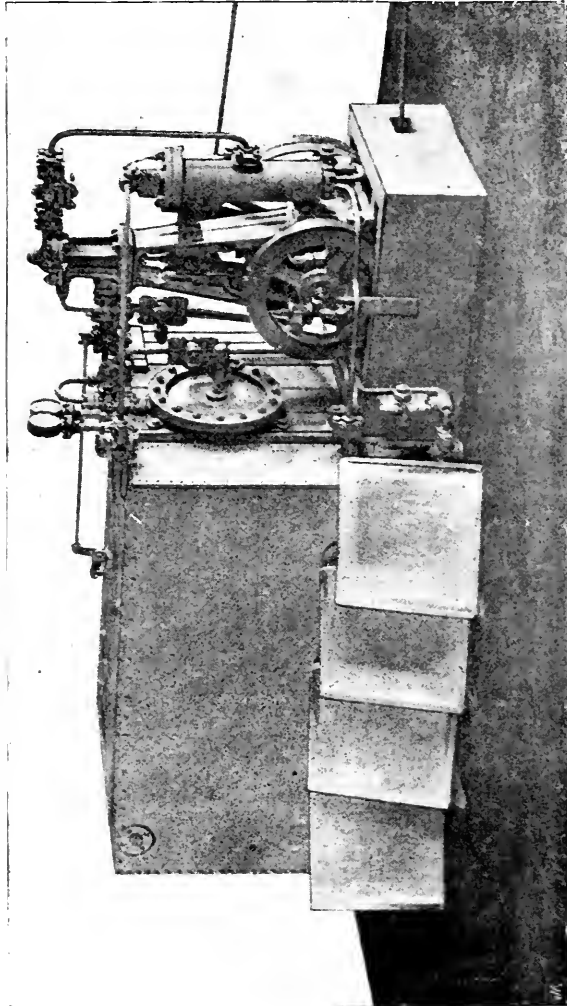
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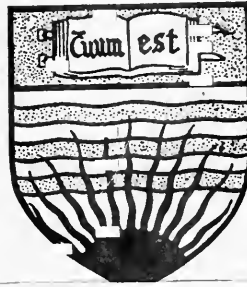
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